

EVERYDAY SCIENCE, SURVEYING, AND POLITICS IN THE OLD SOUTHWEST:
WILLIAM DUNBAR AND THE INFLUENCE OF PLACE ON NATURAL PHILOSOPHY

BY

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TO
REBECCA AND MASON

ACKNOWLEDGMENTS

My interest in studying scientific practices in the southern United States was provoked by Robert Bruce's work. I use "provoked" purposefully here, because his statements about the lack of a southern scientific tradition appeared to me to be insupportable; accordingly, I sought evidence of science in the South during the mid-nineteenth century. Many to whom I spoke doubted that I would find any indication of science in the South; indeed, some openly proclaimed that the phrase itself sounded "oxymoronic." But to my initial relief and latter consternation, I found more material than I could ever assimilate. The large cache of documents recording scientific pursuits in Mississippi alone led me back to the eighteenth century and a planter named William Dunbar. Dunbar's erudition amazed me as I gradually pieced together his scientific studies. The depth and quality of his research led me to suspend, temporarily, my work on mid-nineteenth century science in the southern part of the continent so that I could concentrate on Dunbar and his cohort. This dissertation, therefore, is the first part of an examination of science in the Old Southwest.

While I have felt, at times, isolated in this project, laboring three states removed from my committee, I recognize that they and others influenced every typed word. The staff at the Mississippi Department of Archives and History,

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Abstract of Dissertation Presented to the Graduate School of
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This work explores the scientific labor of William Dunbar, a son of Scottish nobility, who came to America in 1771. Dunbar, an intellectual who established a plantation in British West Florida, was a rarity--a slave owner with an advanced education in astronomy and mathematics. Unlike many of his contemporaries, he settled in the lower Mississippi River Valley, an area riven with danger and insurrection, in order to acquire more than fortune. Dunbar longed to disseminate knowledge for the advancement of science.

The main theme here examines the influence of place on scientific practice by comparing Dunbar's science to that of visiting naturalists, such as Thomas Hutchins, Andrew Ellicott, and George Hunter. The scientific perspective of these visitors to the Old Southwest differed from that of a long-time resident. Dunbar's region lacked the constancy of orderly society typically enjoyed by these men and this

difference can be seen in each man's pursuit of knowledge. Likewise, an examination of Dunbar's dogged pursuit of science provides some insights into scientific practice in the late eighteenth and early nineteenth centuries.

In 1950, I. B. Cohen, a historian of science, claimed that "one cannot discuss any aspect of American culture in the 18th or early 19th century without reference to its relation to established religion." His observation applies to most Protestant locales during this period--naturalists and philosophers sought to glorify God and creation--yet the main historical figures in this study did not fulfill Cohen's generalization. In the Old Southwest, on the plantation frontier, settlers easily shed the jacket of orthodox religion. Few preachers braved the difficult journey to that remote locale; church spires seldom broke the tree line. Spain's capture of the area in 1779 provides only a partial reason for this lack of Protestant piety. In the absence of a religious motivation for science, a different impulse took God's place--the yearning for discovery, and, to a lesser degree, the search for profit. Science did not seem to these early American investigators a means to God; rather, it became a secular avocation which sated their curiosity about the wilderness which surrounded them.

INTRODUCTION

In the late eighteenth and early nineteenth centuries of the Old Southwest a loose network of surveyors, plantation owners, and naturalists labored amidst enormous hardships for the advancement of knowledge. Although these individuals were well-known in their own day and region, historians have largely ignored their offerings to science. These devotees of science labored in a slave society situated on the margin of empires, far removed from the continent's centers of learning. Insurrection, war, political malice, economics, and other factors retarded their efforts to develop a collegial society devoted to scientific inquiry, and yet, they persevered, and made significant contributions to science in America.

The Old Southwest, which included much of the lower Mississippi River Valley, proved a difficult country to protect and stabilize in the eighteenth century: France lost it in 1763; Britain assumed control but surrendered it to Spain in 1779; the United States and the state of Georgia claimed a large part of the country following the Treaty of Paris in 1783, but Spain refused to evacuate her troops until 1798. Even then, for the next several years, the Spanish crown tried to entice western states, like Kentucky,

out of the Union, at least until Napoleon acquired the territory for purposes of his own. With the constant changes in government, accurate surveys and boundaries proved essential in ordering the land and in dispelling confusion.

This dissertation describes the surveys and everyday scientific investigations of planters, surveyors, naturalists, and other intellectuals who worked for the furtherance of knowledge. Of central importance here are the various ways in which place and social context, particularly politics, influenced scientific advances in the area. Four themes predominate: (1) Savants of science in the lower Mississippi River Valley provided colleagues in Philadelphia a wealth of empirical and theoretical observations, most of them superior in quality to information gathered by better-known efforts, such as the Lewis and Clark Expedition; (2) an entrenched historiography which could be termed the "mindlessness of the South" explains the relative obscurity of these men's contributions to science; (3) cultural background and geographical locale not only determined the kind of science pursued by scientific workers in the Old Southwest, such influences also permeated their scientific descriptions of the world. Furthermore, social contexts, such as leisure, wealth, stability, status, and slavery colored scientific praxis and theory; (4) these "apostles" of science doggedly accumulated

knowledge, overcoming daunting challenges in their bid for discovery and in their desire for unraveling nature's mysteries. Such devotion to the service of science, although not motivated by commitment to an established church, was often described in religious terms--indeed, "votary" was the word most frequently used to identify those who voiced paeans to science.¹

This work focuses on the scientific career of William Dunbar (c.1749-1810), a Scot of noble birth who immigrated to North America in 1771. Each chapter examines the geographical and social contexts which influenced Dunbar's view of the world. Other naturalists and philosophers also appear throughout the narrative so as to compare Dunbar's science to that of visitors' epistemologies. Through these comparisons, we may further refine the influence of setting and society on various world views.

For these men to practice science, certain conditions, such as education and funding, had to be met. Chapter One provides a cultural backdrop for Dunbar's intellectual development during the height of the Scottish Enlightenment. Dunbar adapted the scientific training he received at King's College, Aberdeen, to conditions wholly unlike what he had experienced in Scotland. The next chapter details the art of surveying and examines conditions in the Old Southwest prior to Dunbar's arrival. The work of Thomas Hutchins, a surveyor and naturalist, is used here to introduce surveying

practices and the state of knowledge in British West Florida, a colony which included the Old Southwest. Chapter Three follows Dunbar to America and examines his efforts to establish a plantation and an observatory near the Mississippi River. Important here are the many obstacles Dunbar encountered which kept him from a sustained scientific analysis of his new homeland. Spanish rule and a new ordering of society are covered in Chapter Four. During this period of unprecedented political stability Dunbar finally achieved some economic security. Even so, tensions among the Spanish, Loyalists, and Patriots in the area gripped the land with uncertainty and factionalism. The confusion reaches its climax in Chapter Five with the arrival of Andrew Ellicott and American rule. This phase coincides with the introduction of the cotton gin into the area and the spectacular fortunes made possible by this new invention. The first years of the United States' dominion over the Old Southwest are covered in Chapter Six. This was a period during which almost everything Dunbar needed to pursue science--wealth, leisure, political stability, and colleagues--finally cohered. However, political allegiances proved too strong and nascent scientific societies, which Dunbar helped organize, perished under the withering climate of partisanship. Chapter Seven describes how Dunbar and other votaries of science labored in ignorance of each other, in spite of Thomas Jefferson's earnest attempts to

initiate scientific explorations of the Louisiana Purchase. Nevertheless, this stage marked the high point of Dunbar's scientific contributions. It is a time of "everyday" science in an extraordinary place. Here, everyday science is defined as the precise measurement of currents, distances, and geographical coordinates; the use of mathematics to explain and categorize nature; the role of experiments and theory in describing curiosities; and the discussion of phenomena with other men of science on a regular basis. Finally, the Epilogue, which examines Dunbar's twilight years, shows how the enormous distance separating the Old Southwest from scientific centers hindered exploration, fostered confusion, and resulted in missed opportunities.

Science normally thrives under stable conditions--a situation not found in the Old Southwest which witnessed four different governments during a thirty-five year period. But even in the midst of uncertainty and upheaval, gentlemen of science tenaciously explored the land around them, working as distant partners in a world-wide movement for the advancement of knowledge. They collected and catalogued plants and animals, recorded detailed meteorological observations, mathematically described river currents, made numerous astronomical observations, performed chemical analyses of hot springs and ores, and theorized about

rainbows. Most of their findings they shared with others, such as Thomas Jefferson and his fellow members of the American Philosophical Society. The data that these adventurers provided to the lions of science in Philadelphia and London, furnished a needed empirical context for scientific descriptions of North America. Yet these contributions to science have been undervalued by historians.

Many scholars are surprised to learn of a scientific tradition in the Old Southwest. Simply put, many view the North as a place that nurtured the intellect and the South, with its heat, slaves, and violence, as the seat of ignorance.

This enduring opinion has arisen in part from the social condition of the South. In the nineteenth century, the Connecticut-born journalist Frederick Law Olmsted, wrote that the "farce of the vulgar rich has its foundation in Mississippi." "There are men," Olmsted claimed, "of refinement and cultivation,.. but the number of such is smaller in proportion to that of the immoral, vulgar, and ignorant newly rich than in any other part of the United States." Olmsted believed that slavery was responsible for this state of being. Southerners' "constant contact with shiftless Negro slaves," he argued, "tended to develop the habit of ignoring small things because the master's patience was constantly tried by infinite vexations on the

part of the careless slaves." Olmsted firmly believed that the "irritations" the slaves visited upon their masters, "would have infuriated a Northerner. The lax slipshod methods of the Southern plantation tended to develop habits of mind unsuited to progress in science," he concluded.'

Upholding this view of intellectual lassitude, S. E. Morison, another Northerner, claimed in the Oxford History of the United States, volume II (1927), that "The cultivation of cotton and the neglect of men [explains why] by 1850 the cotton kingdom had killed practically every germ of creative thought, had excluded every means of purifying discipline."

Ten years after Morison's condemnation, an offended Southerner, Thomas Carey Johnson, Jr. offered an angry reaction to the Northerner's thesis. In his book, Scientific Interests in the Old South (1936), Johnson marshalled an impressive array of anecdotal evidence detailing Southerners' interests in science education and scientific pursuits--he even presented a chapter on Southern-belles of science. Outraged by the wide-spread impression of the South's scientific inferiority, Johnson divided American historians into what he considered two equally wrongheaded schools: "The one holds that the old South was intellectually dead and that after 1850 it actually began to stink; the other, that its intellectual

attention was devoted exclusively to the study of classics."

This theme of an intellectual desert was most forcibly advanced by W. J. Cash. In his still influential The Mind of the South (1941), Cash wondered why the South, which "enjoyed riches, rank, and a leisure perhaps unmatched elsewhere in the world, . . . which, by every normal rule, ought to have progressed to a complex and important intellectual culture, to have equaled certainly, probably to have outstripped, New England" faltered on the intellectual path.⁴ Cash found his answer in southern society itself. The South's rural makeup compelled its inhabitants to reduce life's complexities to their fundamental parts. Independence, a patina of savoir-faire, high emotions, and the primacy of the physical over the mental all pressed down hard on the South's intellectual house of cards:

To be a captain in the struggle against the Yankee, to be a Calhoun or a Brooks in Congress, or, better still, to be a Yancey or a Rhett rampaging through the land with a demand for the sword--this was to be at the very heart of one's time and place, . . . Beside it, the pursuit of knowledge, the writing of books, the painting of pictures, the life of the mind, seemed an anemic and despicable business, fit only for eunuchs.'

Cash--a North Carolinian who many Southerners felt betrayed his region--thus concluded that the people of the South were complacent, simple in outlook, static in innovation, and lacking an intellectual culture.

Cash's harsh appraisal of the southern intellect, penned just as the history of science was gaining

professional status in the United States, appeared comparatively mild next to Clement Eaton's assertions. In Eaton's The Mind of the Old South (1964)--an obvious allusion to Cash's book--Eaton avoided Cash's sweeping generalizations and concentrated instead on specific examples of "typical men" in the South.⁶ These individuals, he claimed, were not the best-known scientists, or even the most important, but were rather representative men of different generations and different ideologies.

Yet, when he wrote about the "Scientific Mind" of the South, Eaton appeared to be a progressive historian because he carefully considered societal influences which affected his representative men. "Scientists are complex human beings," Eaton figured, "who inevitably are influenced by the controlling assumptions of the society in which they live. They are affected by its attitude toward free thinking, by its religious taboos, and by its economic organization." This forward-thinking statement reflects current trends in histories of science, in which illusions of science's objectivism have been dropped.⁷ So Eaton seems in congruence with modern scholarship in emphasizing the importance of environment in shaping thought; he believed that the intellectual milieu of the South was inseparable from the results of that region's scientific researchers.

Eaton admitted that the South produced some first-rate scientists, such as William Barton Rogers and Joseph Le Conte, both of whom he admired with caution, but when considering the region in its entirety, Eaton concluded: "The study of science requires concentration, perseverance, and great curiosity--qualities in which Southerners as a whole seem to have been deficient in comparison with Northerners."¹⁰ A general condemnation such as this seems inconceivable in modern scholarship, but Eaton was writing in an era of wide agreement on the mind of the South and his statement lay in the circle of orthodoxy, an orthodoxy which was given powerful impetus by a new type of historical analysis: cliometrics.

In the early 1970s, Robert Bruce contributed a quantitative analysis of science in America entitled, "A Statistical Profile of American Scientists, 1846-1876." The piece appeared in the volume Nineteenth-Century American Science: A Reappraisal (1972), edited by George Daniels who had written on the state of science in the age of Andrew Jackson. Daniels proclaimed this volume to be an important step in the reevaluation of the function and character of American science during the nineteenth century.¹¹ Bruce's paper analyzed 477 American scientists active through any part of a thirty-year period. He generated the names for his study from the Dictionary of American Biography, a 22-volume set, published in New York from 1928-1958.¹²

Bruce conceded that the DAB listed only about 20 percent of active scientists, but he quickly added that these men, more than likely, accounted for over half of all scientific articles published in America during this time. Therefore, these 477 men were not representative of the whole scientific body, but rather, they illustrated the profile of the elite in science.

Profiling elites in science can be informative, but Bruce relied on the slanted judgment of a series of editors--Samuel Morison among them--who had displayed a strong bias for the North in general and Harvard in particular; consequently, the majority of Bruce's scientists were from Boston. The DAB has been criticized for its omissions but one reviewer claimed that its oversights can be attributed to the editors' penchant for including only those who offered "some significant contribution, achievement, or activity."¹³ Scholars have shown repeatedly that "significant science" changes over time, and when this judgment of significance is made by historians with little or no training in the history of science, then the omissions themselves become significant.¹⁴

Nevertheless, on the basis of his statistics, Bruce issued some strong opinions of the South. He discussed American science in the framework of a dichotomy: outstanding New England science arising from an "early nucleus of transplanted European culture," and characterized

by the stimulating climate of "Yankee forehandedness and strength in public schools, higher education, industrial technology" as compared to the "South's backwardness in science" due largely to "chiggers," "sweat on the eyepiece," poor public schools, frivolous college students and meager libraries.¹⁵ Furthermore, Bruce echoed the Olmsted-Morrison-Cash-Baton tradition by writing that, "Southern gentlemen lacked the perseverance, concentration and curiosity necessary for scientific research. They could not stand correction or admit to less than primacy in any circle. A shallow romanticism corrupted their minds."¹⁶

How easy it is to criticize general works of history, even works as outstanding as Bruce's later Pulitzer-Prize winning study The Launching of Modern American Science, 1846-1876. Along with other statistical studies, such as George Daniel's work on the Jacksonian era and Sally Gregory Kohlstedt's research on the American Association for the Advancement of Science, Bruce's book has provided a rich, albeit slightly mistaken, context for the nature of science in America. Through their analyses of publications, membership data, scientific circles, and other measures of activity, these authors concluded that the absence of Southerners in their data meant the South largely did not support scientific activity.

Further contributing to this outlook of southern science was the dubious position historians of American

science occupied. Charles Rosenberg, a leading figure in the history of science in America, wrote in 1970 that the "historian of American science is not fully accepted as either an American historian or an historian of science." Rosenberg claimed that many historians of science during the 1970s were practicing positivists, who believed science developed independently of social processes.¹⁷ External influences were still viewed by this important group of scientist/historians as largely irrelevant in scientific practice.

Historians of science soon dropped this "contextless" view of science as an impressive number of works on American science, written by authors trained as historians and not as scientists, began to appear.¹⁸ These new historians, many of them trained in statistics, trumpeted the importance of context and social conditions but when they considered the South, their data either blinded them to context or made it easier for them to accept the old notion of the mindlessness of the South. They carefully counted scientists by region. When they found more natural philosophers in the North than in other sections of North America, they sought to explain why this was so, arriving at some conclusions that were, again, specious.

Fortunately, a corrective to the above view is well underway. Southern intellectual historians and historians of science in America no longer occupy the perimeter of

serious historical scholarship. For the past 25 years, these two groups have given careful attention to the temper of science and the nature of thought in the South. Southern intellectual historians, such as Drew Faust in The Ideology of Slavery: Proslavery Thought in the Antebellum South, 1830-1860 (1981), Michael O'Brien in Rethinking the South: Essays in Intellectual History (1988), and Bertram Wyatt-Brown in The House of Percy: Honor, Melancholy, and Imagination in a Southern Family (1994), sensitively examined the influence of society on southern intellectuals and the latter's role in the South. Historians of science still lag behind the work of intellectual historians in recounting the mind of the South, but a growing number of books on southern science have appeared which are at least providing a base line for further work in the field: the Barnard-Millington Symposia held at Oxford, Mississippi in 1982 and 1983 and published as Science and Medicine in the Old South (1989), edited by Ronald L. Numbers and Todd L. Savitt; The Geological Sciences in the Antebellum South (1982), edited by James X. Corgan; James O. Breeden's Joseph Jones, M.D.: Scientist of the Old South (1975); Lester Stephens' Joseph LeConte: Gentle Prophet of Evolution (1982); Reginald Horsman's Josiah Nott of Mobile: Southerner, Physician, and Racial Theorist (1987); and Tamara Miner Haygood's Henry William Ravenel, 1814-1887:

South Carolina Scientist in the Civil War Era (1987) are but a few of these contributions.¹⁹

Even with the increasing awareness of scientific activity in the South, the notion of the scientific ineptness of the region persists, supported largely by quantification studies. The current quantified view was best described by Ronald and Janet Numbers' "Science in the Old South: A Reappraisal," which appeared in the Journal of Southern History in 1982.²⁰ Relying heavily on statistical analysis, especially Clark Elliott's survey of American scientists from 1800-1863, the Numbers challenged several orthodox positions on southern science, while either reaffirming other views or postulating new conclusions. Their overall opinion of the evidence was that "the southern mind of the antebellum period was only relatively--not essentially--unscientific."²¹

As the Numbers observed, T. C. Johnson's survey of scientific interest in the South held little meaning in the absence of comparative studies for other parts of the country. However, a baseline of science in America now exists, as represented by Brooke Hindle's aged but still useful, The Pursuit of Science in Revolutionary America, 1735-1789 (1959), John C. Greene's American Science in the Age of Jefferson (1984), George Daniels' American Science in the Age of Jackson (1968), and Bruce's The Launching of Modern American Science (1987). Historians now possess a

clearer picture of how science was practiced in America from the 1760's up to 1876. But researchers must still guard against using data, most of which is woefully biased, which includes questionable definitions of the South and of science, presentist measures of scientific productivity, and northern-centered analyses. Even with this caveat, no one can dispute that the South could not match the scientific output of the North during this entire period.

If historians were interested solely in scientific output along traditional lines, such as discoveries and publications, the Numbers' conclusions would be unassailable. But historians of science no longer depend largely on scientific results to portray science, preferring instead to incorporate conditions of culture, environment, social structures, formal and informal networks and a dizzying array of other factors which influence scientists.

To judge the work of southern, and non-southern naturalists, historians must step outside the matrix of urbanism, society membership, biographical memoirs, publications, discoveries, and other standard measures so as to appreciate these naturalists' world view. Such a step opens up richly complicated stories that give new light to the pursuit of science and those persons engaged in that pursuit. This study attempts this grand idea.

The major characters who appear here labored for the advancement of knowledge, at times, with brilliant results.

William Bartram, Thomas Jefferson, and Andrew Ellicott are better-known figures than Dunbar, Thomas Hutchins, Winthrop Sargent, and George Hunter, but all of them contributed significantly to an understanding of America and its curiosities. That Dunbar's, Hutchins', and Hunter's activities remain largely unknown can be attributed to the apparent incongruities they represent: they achieved success as measured by capital and reputation, but these things were not their ends. These well-educated men loved science as much as fortune and incorporated their knowledge and method of thought into the realms of the plantation, of business, and of government.

They were acolytes at the altar of science yet they made contributions outside the orthodox settings of urban surroundings, large libraries, museums, and universities; they labored in the back country, performing surveys, measuring distances, stars, temperatures, river currents, ore content, boiling springs, and other curiosities of unsettled country. Their notion of science was much broader than what is meant by the word today, coming closer to the German word Wissenschaft than to current, more specialized and professional concepts of science. They studied a wide assortment of topics, ranging from Native American languages to wind patterns; all that was new excited their imagination and propelled them down the road of discovery.

More than geography shaped the development of science in the Old Southwest. Part of the historiographical debate is further complicated by trying to define the South. It is unclear when the Old Southwest came to be known as a part of the South. Many historians and novelists point to slavery as the defining element of the South. Without question, slave labor profoundly influenced the way science was practiced. Yet, instead of slavery deadening the intellect, these Africans' presence and their labor inspired and aided the ways of science. They assisted with exploration, established physical boundaries by clearing lines through swamps, and provided owners like Dunbar enough income to purchase rare and valuable scientific instruments.

Although Dunbar was a slave owner, he would not have considered himself a Southerner, as that label is now conceived. Nevertheless, he exhibited "southernisms." In him was the constant pull of change but tethered by a yearning for continuity. He used the past, albeit a past formed in a different country, to survive. Obviously, all immigrants habilitate new lands with cultural tools, but Dunbar represented enduring southern ways in that he portrayed agrarianism, whiteness, maleness, and authority. Additionally, his Scottish heritage and his interest in mathematics, natural history, and astronomy provided him a structured way of organizing the world, much in the same way

that rituals such as those used in Roman Catholicism, bring order to the confusion surrounding life and death."²

One way to understand what motivated Dunbar and his cohort is to inspect the ways by which they described nature. Elements of Dunbar's landscape still survive: cotton fields, the Mississippi River, magnolia trees, canebrakes, and numerous other components of the physical order that adorned the Old Southwest.²³ In the case of settlers of the Old Southwest, their Weltanschauung influenced the ways in which they arrayed their environment. They manipulated their surroundings so as to aid perception and communication and fashion order into experience.²⁴ This kind of organizing is readily apparent in the lives of frontier naturalists. Confronted with the unknown on a daily basis, they methodically collected and catalogued their surroundings. Their social conditioning (education, country of origin, and personality), which determined how they would fit the parts together, was in turn strongly influenced by nature itself, resulting in a circle of causation. However, despite the example of Turner's frontier hypothesis, historians of science have struggled to document ways in which society and the environment have influenced scientific thought.²⁵

Hutchins, Ellicott, and Dunbar were all surveyors. As a result, boundaries preoccupied their thoughts. Although

frontier life, by its nature, features vague limits, these men constructed physical, social, mental, and scientific limits; they met the indefinite and the dangerous and imposed meaning on the landscape. Their kind of science required a measure of peace, innovation, discipline, will power, and the luck of survival.

As a trained scientific observer, Dunbar strove to separate himself from the world as he wrote about the things around him. In the name of science he put aside the personal in order to enhance the objective. Dunbar's writings reveal his reverence for beauty, but his continual efforts to maintain detachment from what he observed distinguish his scientific writings from other genres, such as nature prose. In the former, the writer works within carefully constructed parameters, while the latter features the author's self-conscious presence in the words. But above all, Dunbar considered himself a pursuer of truth, and counted himself as a member of a group dedicated to learning the secrets of the natural world.

In order to solve nature's mysteries, Dunbar used science and rational thought to insulate himself from his surroundings. Unlike Rousseau's experience, as described in his Musings of a Lonely Rambler, in which he relates how he lost his separateness from the world as it penetrated him and he flowed out into it, Dunbar maintained detachment. Dunbar embodied a marginal presence, a boundary between the

savage and the civil. In occupying this position he was better able to interpret what he saw in the same type of way that twilight gives added definition to day and night.²⁴ He was a sophisticate; an intellectual who lived amidst hostile tribes, slave uprisings, foreign invasions, Patriots' hatred, and personal jealousies. He used his astronomical instruments, books, philosophical training, and political connections, these talismans, to restrain the dangers of the unknown and to expand human knowledge. He located his place in the world, both literally and figuratively, and carefully built the kind of life of which he dreamed. He survived the shock of the new by mastering nature, made possible by his continual yearning to know more about the world around him.

ENDNOTES

1. For an interesting analysis of the environment's multifaceted influence on science see Harold Dorn's The Geography of Science (Baltimore: The Johns Hopkins University Press, 1991).
2. Quoted in W. J. Cash, The Mind of the South (New York: Vintage Books, 1941), 20. For a fuller account of Olmsted's appraisal of slavery, see his The Cotton Kingdom: A Selection (Indianapolis: The Bobbs-Merrill Company, 1971).
3. Quoted in Clement Eaton, The Mind of the Old South (Baton Rouge, La.: Louisiana State University Press, 1964), 156.
4. Quoted in Thomas Carey Johnson Scientific Interests in the Old South (New York: D. Appleton-Century Co., 1936), 197.
5. Ibid. The intellectual death and decay thesis shadows the classical view, holding tenaciously even today.

6. Cash, Mind of the South, 195. Cash's sentiment echoes H. L. Mencken's "The Sahara of the Bozart," which was originally published in 1917, in the New York Evening Mail. In that piece, Mencken wondered why the Old South, which produced "men of delicate fancy, urbane instinct and aristocratic manner," a kind of "Ur-Confederate" who had leisure, and who liked to toy with ideas, could possibly lead to a place as "sterile, artistically, intellectually, [and] culturally," as the Sahara Desert. See "The Sahara of the Bozart," in H. L. Mencken: The American Scene. A Reader, ed. Huntington Cairns (157-68) (New York: Vintage Books, 1965), 157-58. I am grateful to Professor Anne Jones for informing me of the Mencken article.

7. Cash, Mind of the South, 96.

8. Baton, Mind of the Old South, viii.

9. Ibid, 137.

10. Ibid, 157.

11. See the Introduction in George Daniels, ed. Nineteenth-Century American Science: A Reappraisal (Evanston, Ill.: Northwestern University Press, 1972), vii-xv.

12. The last volume of the Dictionary of American Biography, v. 20, was actually completed in 1936, with two supplements following. In all, some 14,870 biographies appeared in these volumes.

13. Quoted in John A. Garrarty, "The Dictionary of American Biography" in Reviews in American History 16 (December 1988): 668-676. I am indebted to David Tegeder for supplying me this source. Garrarty, editor of the DAB supplements, admits to being something of an apologist for these volumes.

14. Even if one agrees that Bruce did capture most of the "worthy" scientists in his study, his list omits the vast majority of scientific workers who lack such an appellation. Southern historians recognize that such omissions leave out a large part of the historical record. This sentiment was expressed by Drew Faust in her contribution to Interpreting Souther History: Historiographical Essays in Honor of Sanford W. Higginbotham, ed. John R. Boles and Evelyn Thomas Nolen (Baton Rouge, La.: Louisiana State University Press, 1987): "Many scholars of southern literature ... [are] concerning themselves less with building Simms into an aesthetic rival to James Fenimore Cooper and more with exploring the role of the author within structures of southern life and belief." (99).

15. Robert V. Bruce, "A Statistical Profile of American Scientists, 1846-1876," in George Daniels, ed. Nineteenth-Century American Science: A Reappraisal (Evanston, Ill.: Northwestern University Press, 1972), 78-80.

16. Ibid, 80.

17. Charles E. Rosenberg, "On Writing the History of American Science," in The State of American History, edited by Herbert Bass (Chicago: University of Chicago Press, 1970), 183. Rosenberg goes on to list a number of "chronic ills" which troubled the history of American science at this time, the most severe being the absence of any theoretical tradition in American history. (186)

18. Rosenberg lists some of the reasons for historical interest in science in a follow up to his 1970 essay, "Science in American Society: A Generation of Historical Debate," Isis 74 (September 1983), 356-67. For a larger overview of history's influence in science see Sally Gregory Kohlstedt and Margaret Rossiter, eds. Historical Writing on American Science: Perspectives and Prospects (Baltimore: Johns Hopkins University Press, 1986).

19. Louisiana State University's Southern Biography Series, edited by Bertram Wyatt-Brown, and the University of Alabama Press's History of American Science and Technology, edited by Lester Stephens, offer significant correctives to the weak infrastructure in the history of southern science. Even with the growing number of books on southern science, historians of science many times forget to draw on the work of southern intellectual historians. See, for example, Drew Faust's critique of Tamara Haygood's biography on Ravenel in Isis, 79 (March 1988): 169-70.

20. Ronald L. Numbers and Janet S. Numbers, "Science in the Old South: A Reappraisal," Journal of Southern History 48 (May 1982), 163-84. A slightly altered version of this essay appeared in Science and Medicine in the Old South, ed. Ronald L. Numbers and Todd L. Savitt, (Baton Rouge, La.: Louisiana State University Press, 1989).

21. Clark A. Elliott, "The American Scientist, 1800-1863: His Origins, Career, and Interests" (Ph.D. dissertation, Case Western Reserve University, 1970). Numbers and Numbers, "Science in the Old South," 168.

22. I adopt the terms "change" and "continuity" from Louis D. Rubin Jr.'s short essay "Changing, Enduring, Forever Still the South," in The Prevailing South: Life & Politics in a Changing Culture, ed. Dudley Clendinen (Atlanta: Longstreet Press, Inc., 1988), 224-229. Naturally, in the

absence of slavery, Dunbar's whiteness and authority would have been indistinguishable from that of any other region in the country. Here, I self consciously apply Toni Morrison's ideas in Playing in the Dark (New York: Vintage Books, 1992), wherein she describes Dunbar as a defining representation of American literature: new, white, and male. Morrison argues that Dunbar embodied autonomy, authority, newness and difference, and absolute power, and it was these themes, made possible by the backdrop of "savage" Africans, that constituted the "quintessential American identity" (43-45). Indeed, Morrison's motifs of new, white, and male also describe Western science. However, her depictions of the "rawness and savagery" of Africanism do not necessarily represent antitheses to white, rational, American science: Dunbar used slaves, even field hands, as field assistants to collect and preserve specimens. See, for example, Dunbar, Life, 30. Bertram Wyatt-Brown discusses at length how Catholic ritual provided a foil to the persistent strains of depression and madness in the Percy family. See The House of Percy: Honor, Melancholy, and Imagination in a Southern Family (Oxford: Oxford University Press, 1995), 115.

23. The term "natural symbol" is elaborated in the works of the cultural anthropologist, Mary Douglas. See, for example, Cultural Bias (London: Royal Anthropological Institute of Great Britain and Ireland, 1978); Natural Symbols: Explorations in Cosmology (New York: Pantheon Books, 1982); and Purity and Danger: An Analysis of Concepts of Pollution and Taboo (London: Routledge & Kegan Paul, 1966).

24. Douglas, Natural Symbols, 50-51.

25. Historians of science have labeled the discussion concerning environmental influences on thought as the "internal-external" debate. This tension between mind and "externality" was supposedly resolved many years ago, although some researchers still seem preoccupied with boundaries separating the internal from the external. The debate is an extension of the nature versus nurture dialectic, with science occupying the role of nature. The current terms of the discussion, as illumined by E. O. Wilson's concessions to social structure after he first advocated a strict biological determinism, make consensus unlikely. Frederic Jackson Turner's frontier hypothesis, introduced in 1893, elaborated ways in which frontier life engendered American traits, such as individualism, for example. Societal influences received a strong endorsement from Émile Durkheim's concepts of collective representations and social solidarity, which he drew upon to distinguish social types. Douglas agrees with Durkheim's basic notion,

that society channels individual thought, but she disagrees with Durkheim's contention that modern industrial societies exhibited a weakened collective conscience when compared to so-called primitive societies. Durkheim believed primitive peoples could not know, as industrial societies could, an objective, scientific truth. This conclusion parallels difficulties historians of science have encountered. Douglas carried Durkheim's idea to its logical end; that is, everyone thinks through society. Douglas, Implicit Meanings, xi.

26. Two of the many examples of Dunbar's detachment are found in his incredulity at some of his slaves being hanged on suspicion of plotting to kill their masters, which Dunbar calls "accidents," and his post-mortem exam of Cato, "the most likely negro upon the plantation," who died from some colic-like disorder. See Dunbar, Life, 26-28, 70. Toni Morrison discusses the slave conspiracy in her Playing in the Dark, 42-44. It seems incumbent upon historians to understand the operant boundaries within the past and within themselves. These boundaries' influences, their permeability, their allowance of self into a work, offer insights. In other words, a theory of history should evaluate both the past and the historian. Garry Wills provides an engaging description of the importance of the liminal in his Lincoln at Gettysburg: The Words that Remade America (New York: Simon and Schuster, 1992), 72-75.

CHAPTER ONE
THE ABERDEEN ENLIGHTENMENT: BEGINNINGS

We all set out with great expectations when we come upon the stage to Act our part. (John Jeans to William Dunbar)

Any understanding of William Dunbar's model of science requires an overview of his years in Scotland. It was in northern Scotland, in Morayshire and in Aberdeen, that he acquired his tools for scientific inquiry and natural philosophy. The keystone of his education at King's College, Aberdeen was mathematics. He learned algebra and Newton's new method of fluxions and used this knowledge to refine his scientific technique. Mathematics not only prepared him to make precise measurements, it also enabled him to read and critique complex theoretical concerns. Although King's used a highly structured regimen to educate its charges, Dunbar was able to make a successful transition to life in the wilderness. No doubt, his trained mathematical eye, which lent his descriptions of the New World, a land with a dizzying array of novelty, a degree of precision and objectivity not usually observed on the frontier, was key to his adjustment to North America.

Unfortunately, almost no extant sources address Dunbar's Scottish years. Even his birth certificate has not

been uncovered, leaving open to speculation his year of birth. Most sources cite 1749 as his birth year, a date presumably drawn from Dunbar's tombstone. Born in Elgin, in northeast Scotland, approximately five miles from the North Sea, Dunbar could have traced his lineage back to King Alpin (fl. 834). The Dunbars received their Scottish lands from Malcolm III shortly before 1100 A.D., during a period when refugees were fleeing to the Highlands to escape the Normans. By 1693, when Dunbar's father, Archibald, was born, the house of Dunbar neared its apogee, even though most Highland Scots still scratched the land with wooden tools and ate thin oatmeal fortified with either milk or cow's blood.¹

Sir Archibald Dunbar (1693-1769) enjoyed the rough, outdoor life of the Scottish gentry, possessing a special fondness for dogs. Even though he lived during a time of bloody Jacobite conflicts between England and Scotland, Sir Archibald and his family apparently escaped the virulent anti-English sentiments that gripped so many Highland Scots during the eighteenth century. Although Drummoissie Moor, the site of Bonnie Prince Charles' decisive defeat in 1746, lay only 40 miles southwest of Elgin, the Dunbars displayed no Jacobite interests. In fact, Archibald's younger brother, William, served in the British Army as a captain in the Seven Years' War, losing his life in New York in 1763. Sir Archibald's son, William, thus shared both his uncle's

name and his plight; he was a well-born male, who stood little chance of inheriting the family lands and who would meet his destiny in America.²

Although Dunbar was the first child of Sir Archibald's and Anne Bayne's union, the marriage was Sir Dunbar's second. Sir Archibald's first wife, Helen, had given him three sons, which placed William fourth in line for the family lands. Miss Bayne had begun service as a governess in the Dunbar household in 1748, the same year that Helen died. If William's birth date of 1749 is to be believed, Sir Archibald and Anne united soon after Helen's death. The new Lady Thunderton, along with her husband, recognized the importance of education, and young William early began lessons in Greek. "Like other younger sons," one commentator reported, "it is said that his education was his chief patrimony." Somewhat inevitably then, in 1763, the year his Uncle William died, Dunbar entered King's College in Old Aberdeen.³

During his years at King's, the Scottish Enlightenment neared its apex. Much of the research on this intellectual activity has centered on Edinburgh, which has led to a deficient understanding of northern Scotland's contribution to this movement. While Edinburgh was undeniably the epicenter of the Scottish Enlightenment, Aberdeen produced some ideological tremors of its own. Since Dunbar gained most of his philosophical training in Aberdeen, it is

necessary to examine the social and intellectual context in which he matured.

Located on the North Sea, some fifty-five miles east of Elgin, Aberdeen featured a constant interchange of ideas and goods, and, like most port towns, offered sundry temptations for students. Yet, even though the sea port resonated with an admixture of intellectual discussions and novel sights, Dunbar would have witnessed few of them. Because of past town-gown controversies, which had included sexual indiscretions and sailor riots, King's officials imposed a myriad of regulations to protect their charges from the town's evils. The primary rule seemed to consist of keeping the students behind the college's walls. A 1753 mandate declared that "all the students shall lodge in rooms within the College and eat at the College Table during the whole session." The faculty closely supervised students, as indicated by Professor Thomas Reid's declaration to Dunbar's father that the teachers "need not but look out at our windows to see when they [the students] rise and when they go to bed." Indeed, until his graduation in 1767, Dunbar circulated almost exclusively in this paternalistic, monastic, and scholarly environment. Even though he was a child of privilege, privy to freedoms unknown to most highland Scots, Dunbar's actions were tightly choreographed by his school. He lived in common residence with other students, sharing work, resources, and recreation, and would

have experienced the strong peer pressure incumbent with such arrangements. However, King's increasing emphasis on the scientific method--the pursuit of precision and truth--combined with Dunbar's keen intelligence, might have given him some resistance to group pressures, foreshadowing some of the characteristics he would display in America.'

Although professors tried to leaven King's paternalism by providing a congenial, if not lively, interaction with the students, the students were essentially academic inmates. Thomas Gordon, who held the offices of regent and humanist for 65 years, and who, along with his sisters, likely entertained young Dunbar with toast, cake, and tea, offered a steady hospitality. The only persistent reminders of life outside of the walls would have been the presence of servants, most likely Scots of lower birth, who attended to the pupils' beds, shoes, water, and laundry.'

The harsher aspects of the students' cloistered life may have been ameliorated by the university officials' decision, amidst the numerous curriculum reforms of the 1750's, to continue the system of regenting. Regenting matched students with a regent who would then guide his students through the bulk of their college curriculum. The system dictated that first-year students receive common instruction in Greek, Hebrew, and Latin, but for their remaining three years, students studied with their regent,

who instructed them in logic, the history of natural philosophy, ethics, metaphysics, and science.

Naturally, the quality of instruction varied in accordance with each regent's abilities or interests. The gains in science of the previous century stretched the talents of even the most gifted teachers, and many schools looked for alternatives to such a generalized education.⁴ By 1760, universities in Edinburgh, Glasgow, St. Andrews, and even in Aberdeen, at Marischal, had dropped regenting in favor of the professorial system. The latter method, in which professors taught in their area of expertise, enhanced specialization, but it lessened the contact between regent and student made possible by the old order.

But regenting still had its champions at King's College. Thomas Reid, himself a impressive polymath, defended regenting by arguing for the continuity it provided in students' overall development. "Every Professor of Philosophy in this University," Reid declared, "is also Tutor to those who study under him, has the whole Direction of their studies, the Training of their Minds, and the Oversight of their Manners." "It seems," he continued, "to be generally agreed that it must be detrimental to a Student to change his Tutor every Session." However, science carries with it an insatiable demand for specialization and by the end of century, few could master all of scientific

knowledge, not to mention humanities, religion, and other academic fields.'

The identity of Dunbar's regent remains unknown, although he was probably one of two men. Dunbar's facility with scientific principles and higher mathematics suggests that his tutor ably taught both of these disciplines. Of the King's professors who exhibited such capabilities, Roderick MacLeod seems a likely candidate as Dunbar's regent.

MacLeod served as one of two regents at the school from 1763-67, and he functioned as King's principal during this same period. A letter that he sent to Dunbar, almost 20 years after Dunbar left King's, indicates that the two men enjoyed an enduring friendship and a shared interest in natural history. MacLeod was also intimate with Dunbar's family but little else is known about him.'

Irrespective of his regent's identity and influence, Dunbar entered King's in the wake of curricular reforms that had begun in the early 1700s. By the early eighteenth century, most Scottish universities had incorporated more mathematics and natural philosophy into their classics-laden curriculums. King's followed this trend when it appointed Thomas Bower to its new Mathematics Chair in 1703. However, the faculty did not display the generosity that other universities, like Marischal, exhibited in supporting the new science and monetary support cooled rapidly after

Bower's appointment. Professor Bower needed more than books to offer proper instruction in mathematics and science; he required equipment, some of it expensive. He issued various subscriptions, such as his "Proposals for Buying Mathematical Instruments for the use of the King's College of Aberdeen," but his efforts met with mixed, mostly negative, results. Despite his longevity at the school, he continually struggled for funds and faculty recognition. King's finally dropped its chair in mathematics in the 1730s, but even with its abolition, instruction in mathematics and natural philosophy did not revert to its previous inferior position in the curriculum; increasing numbers of professors came to the college with a proficiency in these subjects.'

One such devotee of mathematics and natural philosophy was Thomas Reid (1710-1796). Born at Strachan in Kincardineshire, not far from Aberdeen, Reid had enrolled at Marischal College in 1722 (most students during this time entered college at the age of twelve or thirteen). Upon graduation, he worked for ten years in the school library where he furthered his education in mathematics. In 1737 he accepted King's College's ministerial appointment to the excitable parishioners of New Machar, not far from Aberdeen. The parishioners, upset that King's College right of patronage forced them to accept ministers without regard to parish needs, viewed the scholarly Reid with some

skepticism. Shortly after his arrival, they reportedly hurled the young minister into a duck pond. However, Reid was a personable and caring parson and soon endeared himself to his religious charges, serving them for nearly fifteen years.¹⁰

During his New Machar period, Reid personified the tradition of clergy attuned to nature. While continuing his research in mathematics and philosophy, he indulged his hunger for exploring the world around him, which included a careful telescopic analysis of the solar eclipse of 1748.¹¹

Reid's talent in philosophical studies led to his election to King's Chair of Philosophy in 1751. His return to Aberdeen placed him in the midst of curriculum reforms, where he championed a more visible role for the sciences.¹²

The reforms of 1753 elevated natural philosophy's place in King's curriculum. The idea of "useful" knowledge, during this period of the Industrial Revolution, had undergone a redefinition as the regents sought to "qualify Men for the more useful and important Offices of Society." Civil and natural history supplanted the preeminence of logic, and, although classical studies still occupied students, particularly in their first year, for their remaining three years they concentrated on natural and experimental philosophy, natural history, and mathematics ranging from fundamentals in algebra to Newton's fluxions. In his lectures, Reid emphasized a core of practical

knowledge: mechanics, astronomy, magnetism, electricity, hydrostatics, pneumatics, natural history, surveying, and optics. To aid such instruction, in 1754 King's faculty called for "Models of the most useful and curious Instruments and Machines" so as to educate through description, demonstration, and, most importantly, praxis. Reid and his colleagues, as had Thomas Bower, required instruments to teach students "surveying, Mensuration [measuring], Navigation, Astronomy and Optics"; novices could not learn these disciplines by reading about them in a book.¹³

However, in Great Britain, instruction in surveying and mensuration led to a greater truth, a truth which outstripped in value the philosopher's preoccupation with position and measurement. Science and scientific measurement detailed God's kingdom and any insight which explained nature, revealed some of the Creator himself: such revelations proved the pinnacle of useful knowledge. When Reid either expounded on natural history or measured a solar eclipse, his labor transcended the benefits of practical learning--he sought the face of God. The study of God's creation, Reid claimed, "gives the clearest Evidence of the Being the Wisdom and Bounty of the Almighty Maker of all these things." Reid was not alone in these thoughts. Throughout Great Britain, natural philosophers, many of them ordained ministers embraced this natural theology--a

sympiosis of religion and science. The new philosophy gloriously unveiled God's kingdom, and consequently burnished the aura both of God and of science. That such beliefs reached their perfection in Great Britain reflects the "concrete" thinking and utilitarianism of a country secure in its borders."

Natural theology in mid-century Aberdeen drew sustenance from the city's two colleges and its philosophical societies. One society in particular, the Aberdeen Philosophical Society, expressed this philosophical outlook. An brief examination of the APS provides a sample of the intellectual dynamism of 18th-century Aberdeen.

Thomas Reid, along with three others, formed the Society in January 1758. Also known as the Wise Club, this group began as a literary society, but its members sampled all fields of knowledge. The Wise Club, which drew most of its fellows from King's and Marischal colleges, has been described as a typical provincial philosophical society in that members delivered papers on divergent topics: belles lettres, natural philosophy, natural history, morals, and social theory. However, the Wise Club differed from other Scottish literary societies in its deep enthusiasm for the new science. With the light of science, Society members sought to illumine both the physical and the moral realms.

The Wise Club expected members to be highly active and required weekly meetings. Society bylaws directed associates to deliver one major discourse each year. Although Dunbar's involvement in the Society, if any, is not known, the Wise Club provided a possible framework for a similar organization which he helped found in the Mississippi Territory.¹⁵

This degree of participation necessitated that members enjoy a degree of economic stability and that they live close by. Society associates occupied definite niches which allowed them to enjoy relative security, stable incomes, institutional support, libraries, and other factors associated with the advancement of science. All these ingredients, however, could not guarantee a vital, productive society. In particular, Reid doubted that he would have published An Enquiry into the Human Mind on the Principles of Common Sense (1764) "without the encouragement which he received from the general acquiescence of his [Philosophical Society] associates...."¹⁶

The Society provided an arena in which Reid could expand his philosophical ideas in the shared landscape of natural theology. The sympathetic ear of his fellows proved important when Reid and the Society encountered the writings of an individual at great odds with traditional natural theology: a fellow countryman, a "sceptical Scot," who lived in the south, in Dunedin.

David Hume (1711-1776) supplied the grist for many Wise Club debates. In a century of "monstrous ideas," Hume's creations ranked in the forefront with their intricate and beautiful denial of the accepted order. Hume's outpourings, which were duly examined and debated, innervated Wise Club members. But Hume provided an important function for the Philosophical Society--Reid informed him that if Hume ever gave up writing, the Society would be at a loss for subjects.¹⁷

Although Hume and Reid differed in many of their views, their philosophies were powered by the same engine. Both men believed that only a systematic inquiry into human intelligence (and its function) could further the advancement of learning. Hume and Reid also agreed, in deference to Isaac Newton's powerful legacy, that analysis of the mind should follow the same principles that guided the physical sciences. However, the two Scots' trenchant faith in science--a position that parallels a belief now called scientism--marked the beginning and end of their unanimity. Hume's optimism for the power of science led him, ironically, to doubt the mind's ability to unlock nature's secrets, whereas Reid, who advanced a system called the "philosophy of common sense," denounced Hume's constrained view of human capacity.¹⁸

Reid, however, did not simply use method to repudiate Hume's theory; his advancement of common sense likewise

enticed those for whom skepticism seemed a luxury, such as educated colonists who wrestled daily with nature. "It is genius," claimed Reid, "and not the want of it, that adulterates philosophy, . . . A creative imagination," he declared, "disdains the mean offices of digging for a foundation, of removing rubbish, and carrying materials: leaving these servile employments to the drudges in science, it plans a design, and raises a fabric." This kind of abstract pursuit of science relied on imagination more than research, creating a situation where "invention supplies materials where they are wanting, and fancy adds colouring and every befitting ornament. The work pleases the eye, and wants nothing but solidity and a good foundation."¹⁹

Reid believed that knowledge rested in a "this world" concreteness, and not in the ethereal pronouncements of Humean theory. Common sense pushed the idea of working in the world--rather than fumbling in the mind--to establish learning, and it proved an ideology well-suited for settlers in a new land. "Wise men now agree, or ought to agree, . . ." Reid declared, "that there is but one way to the knowledge of nature's works -- the way of observation and experiment."²⁰

Reid's metaphors for science--digging a foundation, carrying materials, and removing rubbish--heartened those gentlemen who sought to wrest a livelihood from the American wilderness. He ridiculed what he believed was the ultimate

fallacy of skepticism, namely, that if philosophers can not be assured of their power to reason, then how can they use reason to prove innate unreasonableness? "If philosophy contradicts herself, befools her votaries,.. let her be sent back to the infernal regions from which she must have had her original." Reid opted to trust both in his existence and in the objects surrounding him: "to believe that snow is cold, and honey sweet,..."²¹

Common Sense affirmed and celebrated the boundaries of knowledge. God would not have created humans so that they could not know the world; nature would not toy with the senses. In an ode to nature that would be echoed by the physicist, Albert Einstein, Reid implored, "Is this thy pastime, O Nature, to put such tricks upon a silly creature, and then to take off the mask, and shew him how he hath been befooled?" Reid doubted that nature would trick mankind, but if she did, "if this is the philosophy of human nature," to embrace deception, then, he declared, "my soul enter thou not into her secrets!"²² The unequivocal parameters of Common Sense, parameters based on the dependability of the senses, asserted that the senses did not lie, and that individuals could rest assure that they would not reason themselves out of existence.²³

Through sight, sound, touch, smell, hearing, and taste, colonials examined creation and set themselves apart from it, establishing a schematic that led to systematic

exploration and definition. As they surveyed new lands, built fences, cultivated fields, and pressed on the edge of the wilderness, they could trust that their perceptions would carry them through the difficult and dangerous task of apprehending the unknown. Such a philosophy would serve Dunbar well in America.

Educated elites who settled on the North American frontier, threatened by hunger, unrest, and war, may have admired Hume, but they had little use for his intangible delineation of the cosmos. Whereas Reid and others, secure in their borders, buffered by civilization and the known, could entertain notions of nature's unfathomable arrays. Members of the Wise Club lived in a circle of order: families with centuries-long lineages, lands cultivated for over a millennium, and a relatively stable political and social setting. But the philosophers of Common Sense were more than "Humean" reactionaries; Reid and other like-minded philosophers nurtured utility in the pursuit of knowledge, thus representing an analogue to the colonists' push and pull with nature. Britannic naturalists endured cold, rain-soaked forages into the countryside so as to expand specimen collections. Many of them collected objects of curiosity for personal cabinets, for trade, and for museums, riding over mountains or braving the waters of the North Sea to secure curiosities that would add to the world's knowledge.

One of these outdoors natural historians was young William Dunbar.

After graduating from King's, Dunbar continued his pursuit of natural philosophy and natural history. He studied advanced mathematics and astronomy in London, and even travelled to Holland, although the nature of that trip remains unknown. His ongoing education in natural history followed a path unlike the theory-laden topics in natural philosophy. The praxis of collection required knowledge about habitats, foraging patterns, preservation techniques, trapping, and other details not easily learned in a book; it was science in the field."

Dunbar may have been led to natural history through the influence of William Ogilvie, who had replaced Thomas Reid as regent. In 1764, the year after Dunbar entered King's, Ogilvie published a "Proposal for a publick library at Aberdeen," in which he argued for an assemblage of 'birds, fishes, marbles, spars, etc., etc.' which could be used to guide students. He secured numerous specimens courtesy of 'respectable people in the country around.' Ogilvie's efforts paralleled an increased interest in natural history at King's and Marischal College; these two sister schools being the only Scottish universities to include the subject as part of the Arts curriculum."

Although King's faculty voiced interest in 'a botanical garden,' 'a variety of models of useful engines,'

`Astronomical apparatus,' `an observatory,' and `specimens for the museum, antiques, medals, statues and pictures,' they still retained their traditional reluctance to purchase the tools of science, asserting that such expenditures would result in the breaking of `poor Sorrel's back.' Their refusal to supply Ogilvie these "necessities" forced him to depend heavily on his amateur collectors. That Ogilvie could not penetrate this Scottish frugality was evidenced by a university declamation in 1785: `It has been the wisdom of the society uniformly hitherto, steadily to resist all these tempting plans, and we see no reason for being more compliant in the present instance.'"

A series of letters written by naturalist and family friend, John Jeans of Aberdeen, reveal Dunbar's involvement with natural history collectors. Jeans evidently functioned as a clearinghouse for collectors, sending out instructions and requests to aficionados across northeast Scotland. Museums required specimens ranging from earthworms to gulls and curators needed persons throughout the country to fill cabinets.²⁷ Since Elgin and the surrounding area boasted a tradition of naturalists, Dunbar did not walk the fields and coasts in solitary purpose. Jeans mentions various collectors from Dunbar's vicinity, but allusions to these men are frequently tinged with exasperation since many of these individuals promised, but did not deliver such items as red- and water-colored crystals, minerals, and sea

feathers. Jeans pledged payment, sent razor strops, and even encouraged collectors to bribe fishermen with "a pint to drink" to secure the best aquatic curiosities, yet, he grumbled to Dunbar, "I have not a Scrap of a pen from any person in your neighbourhood."⁹

In Jeans' first extant letter to Dunbar, dated March 1766, when the latter was still a student, Jeans explained his theory of collecting products of the earth: "the following observations may be usefull in your perambulations and researches in Natural History, and may be divided into three principal heads -- 1. of Earths, 2. of Rocks & Stones, 3. of Minerals."¹⁰ Jeans' organizational strategy, like that of other systems, drew on numerous factors. William Whewell, in his History of the Inductive Sciences, claimed that eighteenth-century mineralogists classified minerals in one of two ways: either the natural history approach or the chemical method.¹⁰ The former, which Jeans favored, emphasized external characteristics and location, a methodology that the Swedish botanist and taxonomist, Carl Linnaeus (1707-1778), had elaborated with great success. However, Linnaeus's schema wielded more influence in the identification of plants and animals than it did in eighteenth-century mineralogical systems. Much of rock classification had arisen from a chemical tradition that emphasized rock composition. But the chemical method would not ascend to most-favored status until the chemical

revolution of the late eighteenth and early nineteenth centuries, meaning that classificatory confusion ruled the day; one eighteenth-century author counted no less than twenty-seven mineralogical systems in use between 1647 and 1775.³¹

Along with his theoretical delineations, Jeans emphasized the practical component of collection. He reminded Dunbar that "all depends upon practice join'd with Theory." For example, in his "Earths" grouping, he stipulated that Dunbar should examine red and yellow ochres for iron, blue and yellow earths for lead and tin, and to notice that gold may be found adhering to blue or white spars.³²

Jeans also sought a wide range of specimens: "sea productions," such as sea mosses, "sponges," curious small fishes and shells; animals like the founart (European polecat), white rats, and birds of all kinds that could be captured and stuffed with common salt and dry lime; and popular medicinal plants, such as the Virginian Snake Root, which constituted part of an elaborate recipe Jeans sent Dunbar for the relief of flatulence.³³

All of this theory and activity indicate a science in flux. Ideas gained merit based on practical payoff, with practicality measured in terms of monetary value, utility, and in the gaps specimens filled in a collection. All of these curiosities occupied a place in the Great Chain of

Being -- a chain which had before been static but now, during the eighteenth century, was temporalized. The movement of the Great Chain, accompanied by the large-scale immigration of Scots to the West, marked a new disposition of the world, a loosening of intellectual and societal bonds. All of the earth was to be assimilated into the increasingly complex matrix of natural history.³⁴

Likewise, the confederation of collectors, united by a strong interest in science, displayed many of the elements of loosened ties: innovation, competitiveness, and frontier individualism. Dunbar's association with this informal group of naturalists and the rigors demanded by collecting activities foreshadows the life he will lead as an emigré on the North American frontier.

In his last letter to Dunbar, who was probably formulating his plans to go West at this time, Jeans cited a beatitude attributed to Dean Swift: "Blessed is he who expects nothing; For he shall not be disappointed." Jeans then proceeds to outline his own expectations for the youth. "You are now entering upon the stage of Life to Act Your part," he wrote. "It should be your care to discharge the Lot that providence has assigned you with a good grace." He admonishes Dunbar to love his neighbor and to place a firm and steady reliance upon the "Supreme Being": by doing so, the lad will be "Led through all difficulties as by a Clue through a Labrinth [sic]." Jeans admonishes the young man

to follow a divine plan in preparation for a career. Jeans' exhortation reflects the religiosity of the age and the ultimate motivation for natural history; but his entreaty seems to have been lost on Dunbar, and with this loss was absent the most common reason for pursuing natural history.³⁵

Dunbar's activities, from his graduation in 1767 up to 1771, remain the subject of speculation. It may have been during this period that he furthered his studies in London. Whatever the nature of his plans or his motivating factors, he knew that he could not support himself by assembling odd and interesting shells. His father, Archibald, died in July, 1769 but no records exist as to how this affected William. By early 1771, Dunbar readied to move abroad, to North America.³⁶

He sailed during a period of mass exodus from northern Scotland. Population estimates of Morayshire in 1755 list 30,604 inhabitants, but by 1795, that number had fallen to 26,080, the greatest drop in population by percentage and by total number than in any other Scottish county. The period between 1735 and 1765 also marked the emigration peak for the Baynes, William's maternal kin, many of whom sailed for Philadelphia, and this may also have influenced Dunbar's decision. The choice made, Dunbar obtained an invoice of goods, dated March 6, 1771, from the London firm of Hunter & Bailey, which listed items suitable for trading. Soon

afterwards, he sailed on the packet, Pennsylvania, bound for Philadelphia."

Like so many other Scots of his day, Dunbar sailed beyond familiar geographic boundaries. He left behind his life in the structured Scottish gentry, which would, in turn, hasten his individuation, that process by which he learned to exercise his views and actions outside the immediate influence of his family and culture. As did many of his countrymen, Dunbar left behind a society with clear mores, land holdings, and laws and steered his way into a celebration of the unpredictable, both human and nature."

However, even with removal from society, immigrant Scots either adapted to new parameters or, in the case of Dunbar, entered a world largely devoid of societal constraints. His intellectual views, speech codes, identity as a Scot, and many other components of who he was travelled with him, unnoticed and light. These established bounds would manifest themselves in his physical and mental delimitations of North America as he created unique boundaries by using the familiar knowledge within him.

ENDNOTES

1. Arthur H. DeRosier Jr., "William Dunbar: A Product of the Eighteenth Century Scottish Renaissance," Journal of Mississippi History, 28 (August 1966): 207-208. DeRosier searched diligently for documents on Dunbar, mostly to no avail. DeRosier places Dunbar's birth in 1750 or 1751, structuring these dates around Dunbar's parents' marriage in 1750--a date without documentation--and William's entrance into King's College, Aberdeen. Most of the published

articles on Dunbar use the 1749 birth date in accordance to Dunbar's epitaph which reads: "He died the 16th of October, 1810 in the 62nd yr. of his age." His grave still lies in the family plot just off of Highway 62, south of Natchez. The Dunbar genealogy may be seen in Mrs. Dunbar Rowland, ed. Life, Letters and Papers of William Dunbar of Elgin, Morayshire, Scotland, and Natchez, Mississippi. Pioneer Scientist of the Southern United States (Jackson, Miss.: Press of the Mississippi Historical Society, 1930), 13-15. I am grateful to Mr. Douglass McQueen Jr., a Dunbar descendant, for supplying me an extensive genealogical chart of the Dunbars prepared by Ms. Vanessa Wagstaff. Economic conditions for most Highland Scots throughout the eighteenth century were atrocious. See Duane Meyers, The Highland Scots of North Carolina (Raleigh, N.C.: The Carolina Charter Tercentenary Commission, 1963), 1-2.

2. DeRosier, "William Dunbar," 199-200. I rely on DeRosier's article for most of the details on Dunbar's life in Great Britain.

3. Franklin L. Riley in "Sir William Dunbar -- The Pioneer Scientist of Mississippi," in Publications of the Mississippi Historical Society, v.2 (Oxford, Miss.: Published by the Society, 1899), 85, states that Dunbar was "the youngest son of Sir Archibald Dunbar" a claim which follows family history. However, in addition to his three step brothers, William did have a full brother, Thomas, and it is unlikely that the latter, who chose a military career in the British Army, was born before William. See DeRosier, "William Dunbar," 206, 209. Dunbar used the names Helen and Anne for two of his daughters. Both names are popular among Dunbar's descendants. The Baynes, also spelled "Bain," traced their roots back to the tenth century in Moray, the county where the Dunbars resided. See John C. Bain, The Bain Family: With a Study of their Scotch and Scotch-Irish Ancestry (Raleigh, N.C.: Bynum Printing Co., [1928]), 5. Family tradition, and numerous historians, claim that Dunbar attended the university in Glasgow. DeRosier disputes this in "William Dunbar," 214-216, claiming that William matriculated at King's College in Aberdeen. DeRosier is apparently correct since school records list "Gulielmus Dunbar, Nat. de Thunderton," as attending King's from 1763-67, graduating with an Artium Magistri degree in 1767. See, respectively, P. J. Anderson, ed. Officers and Graduates of University and King's College Aberdeen (Aberdeen: New Spalding Club, 1903), 246 and P. J. Anderson, ed. Roll of Alumni in Arts of the University and King's College of Aberdeen (Aberdeen: Printed for the University, 1900), 84. The Glasgow rumor is interesting, particularly since Dunbar was evidently familiar with the city. See "Extracts from the Letter Book of William Dunbar of the Forest: From June

18, 1775 to March 20, 1802, Together with a Biographical Sketch," 2, Library of Congress, William Dunbar, MMC-alpha. Students bound for King's College were expected to have a working knowledge of Greek. DeRosier, "William Dunbar," 216. The commentator's observation appears in the "Extracts," 1.

4. Quoted in Colin A. McLaren, "The College and the Community, 1600-1860," in Old Aberdeen: Bishops, Burghers and Buildings, ed. John S. Smith (Aberdeen: Aberdeen University Press, 1991), 66, 72. The quotation from Reid's letter to Sir Archibald appears on page 66. Reid may have first become acquainted with the Dunbars by serving as regent to one of William's half-brothers, Archibald, presumably the eldest son, who attended King's from 1752-56. See Anderson, Roll of Alumni in Arts, 77. See also DeRosier, "William Dunbar," 215, where he cites a cleric's attempts to dissuade Sir Archibald from allowing William to attend King's because of its proximity to so many diversions. The 1753 regulation is quoted in Robert Sangster Rait, The Universities of Aberdeen: A History (Aberdeen: Published by James Gordon Bisset, 1895), 200. Despite their youth, King's College students, like most students, courted trouble. See McLaren, "The College and the Community, 1600-1860," 57-60. In her important work, Cultural Bias (London: Royal Anthropological Institute of Great Britain and Ireland, 1978), Mary Douglas describes how group structure shapes individual behavior. See especially, p. 16.

5. McLaren, "The College and the Community," 72.

6. Rait, Universities of Aberdeen, 200, 201, 197. See also, Christine Shepherd, "The Arts Curriculum at Aberdeen at the Beginning of the Eighteenth Century," in Aberdeen and the Enlightenment, ed. Jennifer J. Carter and Joan H. Pittock (Aberdeen: Aberdeen University Press, 1987), 146-47. James W. H. Trail, "Natural Sciences in the Aberdeen Universities," in Studies in the History and Development of the University of Aberdeen, ed. P. J. Anderson (Aberdeen: Aberdeen University Press, 1906), 152.

7. Thomas Reid, Practical Ethics: Being Lectures and Papers on Natural Religion, Self-Government, Natural Jurisprudence, and the Law of Nations, ed. Knud Haakonssen (New Haven: Princeton University Press, 1990), 7.

8. DeRosier argues that Professor Alexander Rait most impressed young Dunbar: "No person in Dunbar's youth--and possibly in his whole life--had more of a profound influence on the young scholar than did Professor Rait." See his "William Dunbar," 217. But Robert Sangster Rait,

Universities of Aberdeen, 197, claims that Professor Alexander Rait died in 1751. The Rait to which DeRosier refers could possibly have been a son, or, perhaps, the influence passed through Rait's writings. The Dictionary of National Biography, vol. 16, p. 880, reports that Thomas Reid succeeded Alexander Rait in a regentship at King's on October 28, 1751. Reid left King's in 1764, the year after Dunbar entered school, when the latter would have begun his studies with a regent. The Roll of Alumni, 84 lists Professors J. Leslie and Roderick MacLeod as the Regents for 1763-1767. John Jeans wrote Dunbar in 1769 informing the latter that Jeans would be seeing "McLeod." Dunbar, Life, 22. Derick S. Thomson, The Companion to Gaelic Scotland (Oxford: Basil Blackwell Publisher, 1983), 290 states that MacLeod was Principal of King's in Boswell's time (1740-95). MacLeod's letter to Dunbar appears in Dunbar, Life, 75. In his letter, Macleod wrote, "I cannot inform you of your Brother or Sister, as I have not seen any of them for a long time."

9. Paul Wood, "Science and the Aberdeen Enlightenment," in Philosophy and Science in the Scottish Enlightenment, ed. Peter Jones (Edinburgh: John Donald Publishers Ltd., 1988), 45-48.

10. An early biographical account of Reid, "Account of the Life and Writings of Thomas Reid, D.D., F.R.S.E.," (1803) came from his loyal student, Dugald Stewart. It appears in The Works of Thomas Reid, D.D., 2 vols., ed. Sir William Hamilton (Edinburgh: James Thin, 1895). Scholarship on Thomas Reid mushroomed in the 1980's. See, for example, Paul Wood, "Thomas Reid, Natural Philosopher: A Study of Science and Philosophy in the Scottish Enlightenment" (Unpublished Ph.D. dissertation, University of Leeds, 1984); Keith Lehrer, Thomas Reid (London: Routledge, 1989); Melvin Dalgarno and Eric Matthews, eds. The Philosophy of Thomas Reid (Dordrecht, Holland: Kluwer Academic Publishers, 1989). Reid, Practical Ethics, 12. Lehrer, Thomas Reid, 2. Cf. also, Encyclopaedia Britannica, ninth edition, 350-352. Stewart in his biography of Reid claimed that Reid received his appointment to King's in 1752. See page 6. King's College's right of patronage angered numerous Presbyterians in New Machar, in part due to past intellectual assignees who had treated their flock with indifference.

11. James Short, "An Eclipse of the Sun, July 14, 1748 observed by the Right Honourable James Earl of Morton, Mr. le Monnier, Royal Astronomer and Member of the Royal Academy of Sciences at Paris, and Mr. Ja. Short, Fellows of the Royal Society," Philosophical Transactions 45 (December 1748), 582-97, New York: Kraus Reprint Corp., 1963, 593.

12. Wood, "Science and the Aberdeen Enlightenment," 46-48. Some sources place Reid's arrival at King's in 1752. For example, Encyclopaedia Britannica (9th ed.) p. 350. Paul Wood, in his biography of Reid, dates Reid's tenure at King's from 1751-1764. McLaren, "The College and the Community," 66, note 36; DeRosier, "William Dunbar," 216, note 92.

13. Quoted in Wood, "Science and the Aberdeen Enlightenment," 47-49.

14. Quoted in Wood, "Science and the Aberdeen Enlightenment," 46-49. Charles C. Gillispie's Genesis and Geology (1951) assigns the English predilection for cosmogonies to a "providential materialism" inherent in their science; providential in that the earth was created and run by God for a purpose -- the benefit of humans. See Genesis and Geology: A Study in the Relations of Scientific Thought, Natural Theology, and Social Opinion in Great Britain, 1790-1850 (1951; rpr. New York: Harper & Brothers, 1959), ix, 4. Britain's natural theology arose from an entrenched tradition of reconciling natural history with Scripture. In the late 1660s, influential English naturalists presented grand theories of the earth's origin which featured God's action. See, for example, Nicolaus Steno's The Prodromus to a Dissertation Concerning Solids Naturally Contained Within Solids (1671), John Woodward's An Essay Towards the Natural History of the Earth (1695), and William Whiston's A New Theory of the Earth: From its Original, to the Consummation of All Things (1696). Continental naturalists exhibited less eagerness to include God in their theories. See G. N. Cantor "Revelation and the Cyclical Cosmos of John Hutchinson," in L. J. Jordanova and Roy S. Porter, (eds.), Images of the Earth: Essays in the History of Environmental Sciences (Chalfont St. Giles, Eng., 1979), 3-22, and Rhoda Rappaport, "Geology and Orthodoxy: The Case of Noah's Flood in Eighteenth-Century Thought," British Journal for the History of Science, 113 (1978), 1-18. Martin Rudwick in his "Cognitive Styles in Geology," Essays in the Sociology of Perception. Mary Douglas, ed. (London: Routledge & Kegan Paul, 1981), 224-27 classifies geologists, many of whom exhibited this type of natural theology, e.g., William Buckland, William Conybeare, and Adam Sedgwick, as working in a "concrete style." They believed in the correct assignment of strata to formations and tended to adjust anomalies so as to make them fit their systems. Such individuals are integrated into a social structure where roles and duties are well defined. See Kenneth L. Caneva, "What Should We do with the Monster? Electromagnetism and the Psychosociology of Knowledge," in Sciences and Cultures: Anthropological and Historical Studies of the Sciences, ed. Everett Mendelsohn and Yehuda

Elkana (Dordrecht, Holland: D. Reidel Publishing Co., 1981), 105.

15. Kathleen Holcomb, "Reid in the Philosophical Society," in The Philosophy of Thomas Reid, ed. M. Dalgarno and E. Matthews (Dordrecht: Kluwer Academic Publishers, 1989), 413-420; Wood, "Science and the Aberdeen Enlightenment," 54-56. John Marshall Lang, "Hector Boece and the Principals," in Studies in the History and Development of the University of Aberdeen, ed. P. J. Anderson (Aberdeen: Aberdeen University Press, 1906), 52. Comparisons between the activities of the Aberdeen Philosophical Society and the Mississippi Society for the Acquirement and Dissemination of Useful Knowledge (1803) offer examples of how culture and environment shaped the character of scientific societies.

16. Quoted in Hamilton, Works of Thomas Reid, 7. As we will see with Dunbar and his American cohort, science could still make modest gains in the absence of stable incomes, institutional support, libraries, and security.

17. Ibid.

18. "The only solid foundation," Hume wrote, "must be laid on experience and observation." David Hume, The Philosophy of David Hume, ed. V. C. Chappell (New York: The Modern Library, 1963), 21. Initially excoriated, Hume's ideas eventually wielded enormous influence, particularly in science and philosophy. Immanuel Kant claimed that Hume changed the direction of the former's speculative philosophy. Thomas L. Hankins provides a helpful overview of the science of the mind, the "moral sciences," in chapter six of his Science and the Enlightenment (Cambridge: Cambridge University Press, 1985).

19. Hamilton, Works of Thomas Reid, I, 99.

20. Ibid, 97. I do not suggest that Scottish philosophy and the thought of Thomas Reid are one and the same; they are not. Scots bequeathed numerous philosophical influences to North America. For a corrective to my singular view, see Richard B. Sher and Jeffrey R. Smitten, eds. Scotland and America in the Age of Enlightenment (Princeton: Princeton University Press, 1990).

21. Hamilton, Works of Thomas Reid, 104. Sensations, according to Reid, were connected to the objects they signified through "natural signs." These natural signs find expression through the body: "the thoughts, purposes, and dispositions of the minds, have their natural signs in the features of the face, the modulation of the voice, and the

motion and attitude of the body: that, without a natural knowledge of the connection between these signs and the things signified by them, language could never have been invented and established among men." Hamilton, Works of Thomas Reid, I, 121-22. Reid's natural signs are remarkably like Mary Douglas's notion of natural symbols. Each is shaped by the body. Language, according to Reid, developed in accord with, and is constrained by, the senses. "Nature hath established a constant conjunction between them [signs] and the things called their effects." Humans inherited from nature "a disposition to observe those connections, to confide in their continuance, and to make use of them for the improvement of our knowledge." In other words, "natural judgments are, . . . a part of that furniture which Nature hath given to the human understanding. . . . They serve to direct us in the common affairs of life, where our reasoning faculty would leave us in the dark. . . . They make up what is called the common sense of mankind; . . . When a man suffers himself to be reasoned out of the principles of common sense, by metaphysical arguments, we may call this metaphysical lunacy; . . ." Hamilton, Works of Thomas Reid, I, 209.

22. Ibid, 103. Reid's opinion that nature would not play tricks parallels a sentiment later expressed by Albert Einstein.

23. The appeal of Reid's thinking to many North Americans became evident in 1776 when Thomas Paine published "Common Sense." Common sense arguments could also be used to persuade colonists to continue their alliance with Great Britain. William Smith, who attended King's College, Aberdeen from 1743-1747, countered "Common Sense's" separatists tones with his "Plain Truth." For a description of Smith's role in the Scottish philosophy see Peter J. Diamond's "Witherspoon, William Smith and the Scottish Philosophy in Revolutionary America," in Scotland and America in the Age of Enlightenment, eds. Richard B. Sher and Jeffrey R. Smitten (Princeton: Princeton University Press, 1990), 115-32. Henry F. May describes the appeal of the common sense philosophy to American colonials in his The Enlightenment in America (New York: Oxford University Press, 1976), 344-50.

24. Most of Dunbar's expositors, e.g. Riley, "Sir William Dunbar," 86; Rowland in Life, Letters and Papers of William Dunbar, 9, claim that Dunbar attended school in London for advanced study in astronomy and mathematics, but I have been unable to verify this claim. Riley repeated this information in his entry for the Dictionary of American Biography, not giving the source for his claim. DeRosier does not comment on whether or not Dunbar went to school in London. DeRosier does claim, though, that William's father,

Sir Archibald, retired to London shortly before the latter's death on July 13, 1769. Sir Archibald's presence in London would have offered his son a chance for instruction there. "William Dunbar," 220. Dunbar also stated that he "lived in Lond. when a young man." Life, 115. In his letter to Dunbar, Roderick MacLeod writes that he had not heard from Dunbar since the latter left Holland. Life, 75.

25. Wood, "Science and the Aberdeen Enlightenment," 49. Ogilvie's publication is cited in P. J. Anderson, "Collections Towards a Bibliography," 430. Trail, "Natural Science," 158-60. Trail speculates that Ogilvie's contributions to science may have been overshadowed by his contentious views on university policy. See page 160. See Jeans' letters to Dunbar in Rowland, Life, 16-23, for Dunbar's collecting activities. In a letter to Dunbar, Jeans mentions that he will be seeing Ogilvie. See page 22.

26. Quoted in Wood, "Science and the Aberdeen Enlightenment," 50-51. King's faculties' views towards science parallel those found in The Constitution of the United States, which took effect in March 1789. Under Section Eight (Powers of Congress) it promised "To promote the progress of science and useful arts by securing for limited times to authors and inventors the exclusive rights to their respective writings and discoveries." No provision for allocating resources for science was made, which initially hampered government efforts to fund scientific endeavors.

27. Dunbar, Life, 16-23.

28. The Reverend Mr. Irwin, at Elgin, for example, had used his three-foot telescope to make detailed notes on the solar eclipse of 1748. Short, "An Eclipse of the Sun," 594-95. Dunbar, Life, 19, 21. Little is known of Jeans. He has been described as being of an "ingenious and active turn" and an enthusiastic collector of mineral specimens. Apparently he travelled extensively throughout Great Britain and became a dealer in curiosities. Samuel Johnson mentions Jeans in the former's Tour to the Hebrides. See Peter John Anderson, ed. Fasti Academiae Mariscallanae Aberdonensis: Selections from the Records of the Marischal College and University. vol. 1 (Aberdeen: Printed for the New Spalding Club, 1889), 426.

29. Dunbar, Life, 16.

30. William Whewell, History of the Inductive Sciences from the Earliest to the Present Times (3 vols.; London: J. W. Parker, 1837), III, 224.

31. I oversimplify mineralogical classification for this time period. Frank D. Adams, The Birth and Development of the Geological Sciences (1938; rpr. New York: Dover Publications, 1954), 201. Many mineralogists used a combination of the natural history and chemical method. The Saxon mineralogist, Abraham Gottlob Werner (1749-1817), integrated the natural history and chemical systems into a scheme that, measured in influence and reach, dominated mineralogy in the late eighteenth and early nineteenth centuries. Werner taught at the Freiberg Mining Academy where he emphasized practical measures, such as color, hardness, taste, crystalline structure, and other features for mineral identification. Werner's system was not elaborated in Great Britain until the 1770s. Werner's system receives an in-depth and sympathetic analysis in Rachel Laudan's From Mineralogy to Geology: The Foundations of a Science, 1650-1830. (Chicago: University of Chicago Press, 1986). The University of Edinburgh Professor, Robert Jameson (b. 1774), described as the "doyen of Scottish geologists" proved to be Werner's staunchest advocate. Martin J. S. Rudwick, The Great Devonian Controversy: The Shaping of Scientific Knowledge Among Gentlemanly Specialists (Chicago: University of Chicago Press, 1985), 86. The term "Geology," did not arise until the late eighteenth century. Werner preferred "Geognosy" (knowledge of the earth) as a designate for that combination of activities which included mineralogy, geography, cosmogony, and natural history. Dictionary of the History of Science (Princeton: Princeton University Press, 1981), 166. Oxford University filled its first position in geology in 1818.

32. Dunbar, Life, 16-17.

33. Ibid, 21, 22.

34. Arthur O. Lovejoy, The Great Chain of Being: A Study of the History of an Idea (Cambridge, Mass.: Harvard University Press, 1964), 244.

35. Dunbar, Life, 20-21.

36. Some historians state that Dunbar immigrated to the United States for his health, but this appears to be purely speculative as no documents yet uncovered explain Dunbar's move to the colonies. The "health hypothesis" gained wide circulation from articles published by Franklin L. Riley. Riley's 1899 piece on Dunbar, "Sir William Dunbar -- The Pioneer Scientist of Mississippi," stated that Dunbar's health failed while the latter was studying mathematics and astronomy in London. (p. 86). Riley repeated this assertion in his Dictionary of American Biography piece on Dunbar, p. 507. Riley did not provide any documentation for this claim

but in his 1899 article he acknowledged the assistance of Major William Dunbar Jenkins, Dunbar's great-grandson, who may have offered this information. DeRosier ridicules the "health hypothesis." See his "William Dunbar," 226.

37. Ian Donnachie and George Hewitt, eds. A Companion to Scottish History: From the Reformation to the Present (New York: Facts on File, 1989), 227. Bain, Bain Family, 6. Morayshire's population decline may be explained in part by increased economic hardship following Prince Charles's defeat, immigration, and the brutally cold weather encountered at 57 degrees latitude. "Invoice of goods sent to Philadelphia by William Dunbar, March 6, 1771." Kammerdeiner Collection. Among the items listed are stag cutters and blue [shrouds]. Riley, in "Sir William Dunbar," 86, mentions that the goods from Hunter & Bailey, reportedly valued at around 1000 pounds, were "suitable for trading with the Indians." DeRosier, "William Dunbar," 227. Dunbar's name appears in the Passenger and Immigration Lists Index for the year 1771: destination, "America."

38. Mary Douglas writes that voluntary removal from society complicates speculations as to how the individual will act in his or her new setting. Douglas, Cultural Bias, 41-46.

CHAPTER TWO
A MYSTERIOUS CONTINENT: THOMAS HUTCHINS AND THE MAPPING OF
WEST FLORIDA

Dunbar reached North America during a period of intensive surveying and map making. Many of the surveyors were army officers, and one surveyor in particular, Thomas Hutchins, would rise to the highest office the United States could offer a cartographer. Hutchins was influential in mapping West Florida and his writings revealed to the world what this little-known land was like. His efforts in the Old Southwest represent the state of surveying in British West Florida. How he spent his time and the objects which absorbed his attention were largely determined by the needs of the Empire.

In the 1770s North America's boundaries remained ill defined; the British, who had wrested from the French almost all the land east of the Mississippi River were busily trying to locate the limits of their empire. Spanish, French, and English surveyors and cartographers had produced numerous maps during the eighteenth century, but many of these charts were based on second-hand information and reflected national desire more than accurate geographical coordinates. With British domination following the French-

Indian War, maps that reliably pinpointed Indian villages, rivers, and various natural resources were desperately needed; subsequently, a legion of British surveyors braved the harsh conditions to furnish the empire with first-hand sightings of the wild country.

Adding to this desire to know the land was Spain's control of New Orleans and that country's subsequent domination of what was becoming the most important trade route in North America, the Mississippi River. Spanish oversight of the mouth of the river prodded the British to a near obsession as the latter desperately searched for a trade route which would bypass New Orleans. Hutchins, just one of the many driven men who braved innumerable dangers in surveying vast portions of America, became a central figure in this search for an alternate route. These were the conditions Dunbar encountered as he made preparations to establish a new Scottish line in British West Florida.

Surveyors from various countries, many of whom were soldiers, had surveyed the eastern portion of the continent. But their processes were inexact and their results, many times, arose from dubious procedures. Establishing some kind of control of the land counted for much in knowing the land and so British cartographers had drawn a clearer picture of the land east of the Appalachians than they had of the territory bordering the Gulf of Mexico.

The British gained these southern lands as a result of a trade. Unable to hold captured Havana following the French-Indian War, they had reached an agreement with Spain in which Britain exchanged the Cuban port, which Spain dearly wanted, for the entire expanse of the Floridas. But as the Spanish and the French already knew, governing East and West Florida proved a daunting challenge.

British administrators, confident in the abilities as colonial administrators, knew the importance of maintaining peace with the various tribes in East and West Florida. Following the Treaty of Paris, the English had established a Proclamation Line at 31 degrees latitude so as to separate colonial settlements from the Native American territories west of the Appalachian watershed. Administrators sought to placate the Indian nations by assigning them unreserved rights to the lands above this line and so avoid the inevitable clashes which arose when settlers encroached on Native American hunting grounds.¹

Therefore, the land called West Florida was created by royal proclamation. It was to be "bounded to the Southward by the Gulph of Mexico, including all islands within six leagues of the coast, the river Appalachicola to Lake Pontchartrain..." with a "line drawn due East from the part of the Mississippi, which lies in the 31st degree of North latitude, to the river Appalachicola, or the Catahouchee." Negotiators used John Mitchell's "A Map of the British and

French Dominions in North America" (1755), to set the northern boundary. To their dismay, the British soon realized that the Proclamation Line fell below the fertile lands of Natchez and other important communities. Subsequently, in 1764, officials clandestinely moved the boundary north to where the Yazoo River spills into the Mississippi (32° 28'), just north of present-day Vicksburg.²

The British redrew the line for good reason. The tangle of trees and cane brush in the lower Mississippi River Valley sprang from a rich soil that settlers described as a thick, black mould of about one and a half to three feet deep. Many varieties of trees flourished here: oaks, especially the majestic live oak, cypress, black walnut, hickory, white ash, cherry, plum, and poplar, along with a wide variety of shrubs and medicinal roots. Settlers grew indigo, rice, tobacco, Indian corn, and some wheat while nurturing livestock of black cattle, horses, mules, hogs, sheep, and poultry. The agricultural potential of the area seemed enormous.³

The Board of Trade moved quickly to encourage settlements. It instructed the new governor of West Florida, George Johnstone, to allow "one hundred Acres of Land be granted to every Person being Master or Mistress of a Family, for himself or herself, and fifty Acres for every white or black Man, Woman or Child, of which such Person's

Family shall consist." To ensure that the grants received wide notice, the Board published announcements in the "London Gazette" as early as November 14, 1763.⁴

The grants were slightly modified in 1770 with the establishment of three basic types: 1) Family Right -- where the head of a family could secure 100 acres for himself or herself and 50 acres for each white person or slave in the grantee's entourage; 2) Purchase Right -- which allowed settlers to purchase up to 1000 acres more than what they could obtain by family right as long as they improved the land; and 3) Military Right -- a special inducement for veterans of the French-Indian War in which a field officer might acquire up to 5000 acres.⁵ Numerous Britons, particularly veterans, received generous grants, such as the 3000 acres that Daniel Clark, a reduced, Irish-born captain, acquired near "Fort Natchez" on January 10, 1767.⁶

The urgency to settle East and West Florida heightened the need for the land to be surveyed. In 1764, the British Admiralty assigned George Gauld to survey portions of these lands. Gauld, along with William Gerard De Brahm, surveyor of the Southern District of North America, Bernard Romans, a Dutch engineer, and Dr. John Lorimer, a recent emigre to Pensacola, hurriedly captured the Floridas on parchment.⁷

These surveyors followed a tradition in which boundary marking also entailed descriptions of the land's natural history. Romans published several maps, including A Concise

Natural History of East and West Florida (1775), which featured information ranging from sailing guides to environmental inventories. Lorimer and Gauld also examined the area's curiosities and, like Romans, provided numerous specimens of seeds, plants, and fish for the American Philosophical Society in Philadelphia. These surveyor/naturalists not only defined the parameters of the land, they also decided which plant and animal specimens were worthy of study. These men served as the eyes for the rest of the world--their perceptions determined how others would view the land. But even those working in the southern lands could not cover every acre of land and they too relied on descriptions provided by others. Subsequently, errors arose.*

A 1772 map of Romans, which covered much of the area now encompassed by Mississippi and Alabama, misplaced and misnamed streams and villages. Since his accuracy in areas he personally surveyed was impeccable, his mistakes arose from a reliance on hearsay, a necessary expedient when surveying wide and dangerous areas. Nevertheless, inaccurate maps could prove perilous in this wild land.⁹

Native Americans did not know or care if their villages were inaccurately located on maps--they knew where they were--but English rule accompanied the first widespread and sustained immigration into West Florida and newcomers relied heavily on these maps.¹⁰ Furthermore, in the 1760s,

serious labor shortages on the plantations led to the importation of large numbers of Africans into the district: by 1769, some 4000 of them working on farms between New Orleans and Pointe Coupée, changed the face of the land. However, from Pointe Coupée up to the Natchez, few settlers chose to clear the fertile land.¹¹

Lord Hillsborough, who had supervised the establishment of the Proclamation Line, knew of the potential deadliness arising from errors made on boundary separating the native residents from settlers. Therefore, he commanded the Superintendent of Indian Affairs in the Southern Department, John Stuart, to clarify the line.¹² Stuart (1718-1779), a Scotsman from Inverness, had begun his colonial career in 1748 as a merchant in Charleston. He gained a place in the city's intellectual scene, becoming a member of the St. Andrew's Society and the Charleston Library Society, and in 1763, he was awarded the Superintendency of Indian Affairs for the entire Southern Department of North America.¹³

Stuart's experience with Native Americans impressed on him the importance of running an accurate boundary. In a twelve-year period, he carefully etched a line from the Ohio River to the Gulf. By drawing on numerous sources and by employing a young, talented cartographer, Joseph Purcell, Stuart captured this boundary line on a series of maps, the first of which was completed in 1775. These charts, measuring six feet by six feet, included information on

roads, trails, mountain ranges, settlements, and, of course, boundaries.¹⁴ They proved invaluable to government officials and recent immigrants, and their unprecedented accuracy established Stuart's fame. In fact, a map's correctness was increasingly linked to the surveyor's first-hand experience in the area. Those who took the time to explore the Floridas produced the better maps. One such surveyor, whose graphs carried great influence in government circles, was Thomas Hutchins (1730-1789).

Hutchins, born in Monmouth County, New Jersey, lost his parents while he was still a child. He was the younger brother of Anthony Hutchins, who would become an influential member of the Natchez community and a neighbor of William Dunbar. Thomas shared at least three characteristics with his older brother: Both of them were fiercely independent, slight in stature, and spent most of their lives on the rugged frontier. After entering the British army, Thomas became a commissary or supply officer in 1758, serving at the remote and recently conquered Fort Pitt. He discharged his duties with distinction and found time to study engineering, eventually assuming responsibility for refurbishing the fortifications. His scientific turn of mind led him to write a number of articles on the natural history of America, conceived in part during his stint as an

assistant in the Department of Indian Affairs to the Westward and as an explorer for the crown.¹³

Hutchins' abilities eventually carried him beyond the Ohio Valley. In June 1766, he and Captain Harry Gordon, chief engineer of the Western Department of North America; George Croghan, a deputy superintendent of Indian affairs; George Morgan of the Indian trading house of Baynton, Wharton, and Morgan in Philadelphia; and numerous members of the Six Nations, Delaware, and Shawnee, left Fort Pitt and descended the Ohio and Mississippi Rivers en route to the Floridas. General Thomas Gage had ordered Gordon to examine frontier defensive positions and to usurp French trade interests.¹⁴ Gage also wanted Gordon to establish ties with various nations, some of whom were still in the French camp, and to gather information on this virgin land.

Gordon's journal of the tour, penned in large part by Hutchins, depicts the nature of scientific investigation in this time and place. The explorers' account of a visit to the Big Bone Lick, about some 20 miles southwest of present-day Cincinnati, illustrates what these early explorers deemed worthy of note. Accompanied by a "Party of Indians and Batteau-Men" Gordon and Hutchins made their way to "this much talked of Place." There, amidst some of the finest pasturage they had seen, they discovered many large bones laying on the ground. Some appeared to be elephant tusks while others seemed to have come from various parts of a

large animal, some of which they collected. The salty mud attracted an assortment of animals, including large herds of buffalo, elk, and deer.¹⁷

Although much of the journal features this kind of narrative, Gordon and Hutchins also gave careful quantitative descriptions. They shot latitudes and scrupulously measured distances, river currents, and river depths. A typical entry read, "Notwithstanding of our Distance from the Fort being 682 Miles our Latitude is not much Southerly." These two quantifiers--distance and location--heralded an enormous improvement in the cartography of the Ohio and Mississippi Rivers. Quantification also marked a change in characterizations of the country side.

Almost all descriptions of the land, up to this point, featured qualitative depictions and inexact modifiers: the Father of Waters, the Big Bone Lick, the salty mud. Such delineations worked well for Native Americans, traders, and others who needed landmarks to find their way through the wilderness and who were not prepossessed with owning and distributing the land, but for those charged with mapping, dividing, and allocating territory, such natural landmarks had to be located on a two-dimensional surface. The sale of the land, a foreign concept for most Native Americans, required maps and plats which accurately reflected the terrain. This decidedly unnatural process meant that

settlers had to rely more on geographical coordinates than on the actual terrain to select a parcel of land. Many times, land petitioners, having chosen a plot, would search in vain for their grant. Subsequently, until land speculators felt they could trust quantitative land schematics, qualitative narratives continued to dominate descriptions of the Floridas.¹⁸

After tracking up the Mississippi River to examine Fort Chartres' imminent peril of sliding into the great river, Gordon's party turned down river on September 18, 1766, towards Natchez. The men described a horrifying descent into the unknown. During this time of year the Mississippi was low, and they likened their passage as one entering "a large hollow, .. into which You must descend.... On one side, is a Bank from 25 to 30 Feet high, where very often, you see and hear great Pieces of Mud or Clay, on which are growing Trees, tumbling into the Torrent." Added to this turmoil is a swift current, running 3 to 5 knots an hour, in which there are huge trees, "fast to the Bottom, but bent by the impetuous Stream, and some of them only bobbing up their heads when their own Elasticity gets the better of the Strength with which the Water bends them down." Added to these hidden dangers were multiple sand bars, and the passages between these "Sandy Beaches" are "interspersed

with a Thousand Logs, and thro' which to direct your Course, is a very great uncertainty." Exploration along the river's edge also proved difficult. "When you Land, and with much difficulty Scramble up the Banks of falling Mud, You find traces of the Floods and Stuff that hinders your going far." Likewise, was the constant threat of quicksand or "Muddy Sands, where you may wander among Pieces of broken Land for a Mile at least, without reaching the firm ground." The drama on the river's unsteady banks so impressed the men, that they claimed to find only a few spots of habitable ground above the Natchez settlement.¹⁹

They reached Natchez on October 6. The fort appeared in repairable condition, only one side of the cypress pentagon requiring the attention of the 60 men of the 21st Regiment who had arrived 6 days before. The black and light soil that made up the area, they deemed fit for "the Vine," Indigo, silk, and tobacco. The only problem they found with the settlement was its inadequacy as a "Port to the Sea" since the Spanish effectively controlled navigation of the river with their possession of New Orleans.²⁰

Gordon and Hutchins continued down the river and visited two places which Dunbar frequented when he settled in this area seven years later. Point Coupeé, a French settlement, consisted of 110 well-off families who produced tobacco, corn, lumber, and little else. "They are not Strong Enough in Negroes," wrote Gordon, "to Attempt making

Indigo, which is the only Reason they don't." Another 12 leagues down the river, at the intersection of the Iberville and Mississippi Rivers, lay square-shaped Fort Bute, its stockade in disrepair. The new British governor, George Johnstone, had ordered the construction of this fort in honor of his patron Lord Bute. Johnstone had also directed that the Iberville's channel be cleared, believing that the feeble stream could serve as the much needed bypass around New Orleans. When Gordon and Hutchins viewed the now-dry river bed, still choked with vegetation and cut logs, such a passageway seemed an unlikely trade route, but they left the question open.²¹

The Iberville River's potential remained an open question for six years. In 1772 Hutchins was called again to consider the river's possible role in circumnavigating New Orleans. By this time, the British had ruled the Floridas for almost ten years, but inaccurate geographical reports continued to frustrate attempts to establish a Mississippi route around the Spanish. Hutchins was receiving some recognition at this time for his contributions to natural history. He had been elected to the American Philosophical Society on April 17, 1772, and his familiarity with the lower Mississippi region, led to his reassignment to Pensacola as that fort's engineer. Hutchins was ordered to scout Spanish settlements along the

Mississippi, assess alternative trade routes, and secure fort defenses."³

In April 1773, Hutchins revisited some of the places he had first contacted with Gordon in 1766. At Manchac, the British community which accompanied Fort Bute at the junction of the Mississippi and the Iberville, his careful measurements and scrupulous reports eroded the illusion that had persisted since Sieur d'Iberville's initial exploration. Hutchins believed that the Iberville could serve as a shortcut between the Gulf and the Mississippi, albeit not as an all-water route. Subsequently, he proposed that a road be cut from Manchac to the fork of the Iberville and Amite Rivers--a suggestion which was carried out."³

Hutchins also recorded dramatic changes in Point Coupee which now, he noted, had about 2000 inhabitants "of all ages and sexes, and 7000 slaves. They cultivate tobacco, indigo, and Indian corn, raise vast quantities of poultry.... Square a great deal of timber and make staves, which they convey in rafts to New Orleans."⁴ This was the setting in which Dunbar entered.

Back in Pensacola, Hutchins' independence showed itself. He clashed with Johnstone's successor, Governor Peter Chester, over questions of civil and military authority, fulfilling only a minimum of Chester's demands so as to avoid prison. He also had little contact with his family. His older brother, Anthony, a small but dominating

man who served as a colonel in His Majesty's army, had settled in West Florida six months after Thomas' transfer to Pensacola. Although he visited Anthony's large family during a survey of the Natchez area in March 1773, and even obtained a 1000-acre tract next to his brother's plantation on Second Creek, Thomas never settled there."

The most dramatic example of Hutchins' independence occurred in the late 1770s. While in London, in 1779, pleading for reimbursement of personal expenses incurred on the crown's business, he was charged with high treason for passing information to the Americans. Officials had discovered in Hutchins' Pensacola quarters, letters to a suspected rebel agent, Samuel Wharton. Hutchins claimed no wrongdoing and even turned over subsequent letters he received from Wharton. Although the evidence against Hutchins was substantial and treason charges made during wartime usually ended badly for the accused, Hutchins was released from prison after some six months of detention."

Although not convicted of treason, Hutchins became a pariah among his fellow officers and sought to sell his captain's commission, which he valued at 1500 Pounds, sterling. After writing three times to his superior at Pensacola and receiving no answer to his request, he determined that he had been treated badly by the crown and he shifted his loyalties to the colonists. He secreted himself to France, making his way to Passy, and appealed

directly to Benjamin Franklin to enter the army of the United States. To strengthen his appeal, he took the oath of allegiance.¹⁷

Franklin, impressed with the fifty-year old Hutchins, recommended him to Congress and the ex-British captain found himself, in May 1781, serving as geographer to the southern army of General Nathaneal Greene. Recognizing that such a position would last only as long as the war, Hutchins asked that the title be changed to Geographer of the United States of America and in July, 1781, Congress assented to this request.¹⁸

Hutchins enjoyed his position's possibilities in the aftermath of independence. Always feeling pressed for money, as did most of those who served the federal government, he successfully petitioned a debt-conscious Congress for protractors, quadrants, perambulators, field glasses, and other instruments in order to meet his responsibilities as geographer. Likewise, expanded economic opportunities required his services on the state level as evidenced in the Pennsylvania Assembly's commissioning of Hutchins, David Rittenhouse, and Nathan Sellers to report on opening the western lands for trade.¹⁹

Since revolutions produce chaos and Hutchins' forte was pulling order out of confusion, he reaped enormous benefits from various states' need to secure state lines. Post-war state boundaries increased in importance as each state

struggled to retain hard-won land. The Pennsylvania Assembly again asked Hutchins and Rittenhouse, along with the Reverend John Ewing, to settle the long-disputed boundary between Pennsylvania and Virginia. Andrew Ellicott and the Reverend James Madison, both of them respected surveyors and naturalists, served as Virginia's boundary representatives.³⁰

In July 1784 the two parties commenced the line survey. The days of Love's straight rod, compass, dead reckoning, and best guess had evolved into measuring altitudes of the sun and timing the eclipses of Jupiter's moons. Mathematical ability, knowledge of the heavens, and a sure handedness with delicate optical instruments were required by surveyors deigning to chart latitudes.³¹

In the midst of his surveys, with his reputation ascending, Hutchins published An Historical Narrative and Topographical Description of Louisiana and West Florida (1784). The book offers a typical site-by-site description of various areas in the northern Gulf region and features a smattering of latitudes and measurements. But it is Hutchins' view of America which holds particular interest:

This immense continent [North America] will be peopled by persons whose language and national character must be the same. Foreigners who may resort to us, will be confounded by the general population, and the whole people, physically speaking, one: so that those seeds of decay, sown in the very foundation of the ancient empires, will have no existence here.³²

Such a declaration in a book examining an area held by the Spanish, in a region which featured significant populations of French, Acadians, Africans, Native Americans, and other nations seems extraordinary, but Hutchins was expressing a sentiment that the French emigré, Michel Guillaume Jean de Crèvecoeur (J. Hector St. John) had proclaimed some two years before: "What then is the American,..." He is someone, "who leaving behind him all his ancient prejudices and manners, receives new ones from the new mode of life he has embraced, the new government he obeys, and the new rank he holds." "The American," Crèvecoeur declared, "is a new man, who acts upon new principles."

Crèvecoeur, who wrote beautiful essays on natural history, and Hutchins are describing a novel societal construct. They see unity despite magnificent diversity. However, their professions of singular aim and their physicality were belied by a heterogeneous society in which nationhood and American were subsumed by state powers, individuality, mobility, innovation, and the drama of intense competition. A place where scientific inquiry, accompanied by the right focus, could thrive."

Thomas Hutchins, born in America, adopted by the United States, and now an influential federal official, received his greatest opportunity after passage of the North West Land Ordinance in May 1785. He was assigned a corp of surveyors with the critical task of demarcating the

Northwest Territory -- the famous Seven Ranges -- so that the land could be sold and thus pull the young country out of debt.¹⁴ However, the Native Americans experience with British encroachments on the Proclamation Line, prompted them to resist the United States' visible division of native land; repeatedly, the surveyors had to abandon their efforts.¹⁵

Various tribes obstructed the grand survey but they could not stop it. Still, Hutchins tired of the continual threats posed by the aborigines and the pressure from the government to conclude the mapping. When Don Diego Gardoqui promised him fertile lands along the Spanish Mississippi, Hutchins promised to switch his allegiance to Spain if he could also be appointed geographer to His Catholic Majesty. But before Hutchins could take yet another oath of allegiance, he died in 1789, at the age of 59.¹⁶

As his biographer has stated, Hutchins had learned "the value of taking care of himself without becoming involved with others,..."¹⁷ Born in New Jersey, a British officer for much of his life, a man who freely switched allegiances, Hutchins provides an example of a person who believed that his role in life depended on his own actions and not on what society dictated -- a distinctly American spirit. His behavior typified those who operated on the frontier, in sparsely settled lands. Typical of the surveyors' persona, Hutchins forged his identity by

representing the land and by providing information that others needed. His devotion was to inquiry, and although he also sought material gain, his curiosity pushed him beyond the ken of possession, leading him into places where his interest in nature could be sated. He was a man much like William Dunbar.

ENDNOTES

1. See Peter J. Hamilton, "Running Mississippi's South Line," in Publications of the Mississippi Historical Society, ed. Franklin Riley, v. II (Oxford, Miss.: Published by the Society, 1899), 157. It should be remembered that the Native Americans knew the land much more intimately than did the Europeans. The Indians also had established boundaries to delineate hunting grounds. But what was alien to them was the concept of imaginary lines, boundaries which did not rely on natural landmarks. The native population soon learned what these cartographic lines meant and they frequently resisted the surveying of the land.
2. Quoted in Isaac Joslin Cox, The West Florida Controversy, 1798-1813 (Gloucester, Mass.: Peter Smith, 1967), 12. The 31st parallel had been used as a boundary in early Carolina grants and was considered a convenient designation.
3. Matthew Phelps, "Appendix to the Memoirs and Adventures of Captain Phelps," in Memoirs and Adventures of Captain Matthew Phelps . . . Particularly Two Voyages from Connecticut to the River Mississippi, From December 1773 to October 1780 (Bennington, Vt.: Press of Anthony Haswell, 1802), 41-42. The great promotor of this land, Montfort Browne, believed this thick, black mould could produce "Wine, Oyle, Wheat, Barley, Rice, Rie, Buckwheat, Oates, Hemp, flax, Cotton, Indigo, Hopps, -- Tobacco." Clinton Howard, "Colonial Natchez: The Early British Period." Journal of Mississippi History (July 1945), 166.
4. Quoted in Clinton Howard, The British Development of West Florida, 1763-1769 (Berkeley: University of California Press, 1947), 8, 9.
5. John K. Bettersworth, Mississippi: A History (Austin, Tx.: The Steck Co. 1959), 13. Henry P. Dart, ed. "British

Proclamation of October 7, 1763, Creating the Government of West Florida," Louisiana Historical Quarterly 13 (1930): 612.

6. See Clinton Howard, "Colonial Natchez: The Early British Period," Journal of Mississippi History (July 1945), 161-62. Howard, British Development of West Florida, 80. Despite the appearance of favorable terms, securing a tract in West Florida could be dreadfully complicated and expensive. See Cecil Johnson's excellent analysis of the process in "The Distribution of Land in British West Florida," The Louisiana Historical Quarterly 16 (October 1933), 539-553.

7. Brooke Hindle, The Pursuit of Science in Revolutionary America, 1735-1789 (Chapel Hill, N.C.: Published for the Institute of Early American History and Culture, 1956), 176-77.

8. *Ibid.*, 178-79.

9. H. S. Halbert, "Bernard Romans' Map of 1772," in Publications of the Mississippi Historical Society 6, ed. Franklin L. Riley (Oxford, Miss.: Printed for the Society, 1902), 415-439.

10. See James, Antebellum Natchez, 9-11; 17.

11. John Clark, New Orleans, 1718-1812: An Economic History (Baton Rouge, La.: Louisiana State University Press, 1970), 184.

12. This changed boundary created enormous difficulties when the United States later tried to take possession of this area from Spain.

13. Biographical information on Stuart is taken from John Richard Alden, John Stuart and the Southern Colonial Frontier: A Study of Indian Relations, War, Trade, and Land Problems in the Southern Wilderness, 1754-1775 (1944. Reprint. New York: Gordian Press, 1966), 159-171, 136.

14. William P. Cumming, British Maps of Colonial America (Chicago: University of Chicago Press, 1974), 18-19.

15. Biographical details on Hutchins' life are drawn mostly from Anna Margaret Quattrocchi's, Thomas Hutchins, 1730-1789, Ph.D. Dissertation, University of Pittsburgh, 1944, 4-6, 21-22, 26; and Dumas Malone, ed. Dictionary of American Biography 2 (New York: Charles Scribner's Sons, 1932), 435-36.

16. Harry Gordon, "The Journal of Captain Harry Gordon," in Travels in the American Colonies, ed. Newton D. Mereness (New York: The MacMillan Company, 1916), 457-489. Gordon's

account, which Quattrocchi believes was written largely by Hutchins, was transmitted by General Gage to Lord Shelburne. Quattrocchi, Hutchins, 78. Mereness reported that the official copy of this journal is in the Public Record Office, London: C. O. 5: 85, pp. 123-40. Several other transcripts and copies also exist. In a letter accompanying the report, Gage praised Gordon's distances and latitudes for their unprecedented accuracy. Gordon, "Journal," 458. Gage's letter also provides a good example of the difficulty in establishing boundaries and regulations in England's new territory.

17. Quattrocchi, Hutchins, 78. Gordon, "Journal," 466-67.

18. Ibid, 468. Quattrocchi, Hutchins, 78-88, 316.

19. Gordon, "Journal," 478.

20. Ibid, 479-80.

21. Ibid, 481-82. John Preston Moore, Revolt in Louisiana: The Spanish Occupation, 1766-1770 (Baton Rouge, La.: Louisiana State University Press, 1976), 62-64.

22. "Hutchins," DAB, 435. Quattrocchi, Hutchins, 162-63. Hindle, Pursuit, 179-80. Although the advancement of knowledge was not an essential component of APS membership--some wealthy citizens were solicited to support the group--Hutchins' election to that body has been attributed to his essay, "Remarks on the Country of the Illinois," which was read before the Society on December 20, 1771. Joseph G. Tregle, Jr., "Introduction," An Historical Narrative and Topographical Description of Louisiana and West-Florida (Gainesville, Fl.: University of Florida Press, 1968), xv.

23. Quattrocchi, Hutchins, 143-49. The Iberville River's role in the chronic desire for an alternative trade route illustrates the significance of geography and boundaries in history. It seems reasonable to assume that had the Iberville proven viable for trade, Manchac would have become an essential port town for the British. As Hutchins envisioned it, Manchac "might be of consequence to the commerce of West-Florida; for it may with reason be supposed, that the inhabitants and traders who reside at Point Coupeé, at Natchitoches, Attacappa, the Natchez, on the East side of the Mississippi above and below the Natchez, at the Illinois, and St. Vincents on the Ouabache, would rather trade at this place than at New Orleans, if they could have as good returns for their peltry and the produce of their country; for it makes a difference of ten days in their voyage, which is no inconsiderable saving of labour, money, and time." Thomas Hutchins, An Historical narrative and Topographical Description of Louisiana and West-Florida (1784. Reprint.

Gainesville, Fl.: University of Florida Press, 1968), 43. Fort Bute would have been enlarged, English customs would have played a larger role in the area, and stability would have been enhanced. All of these factors would have influenced Dunbar's practice of science when he settled in this area.

24. Hutchins, Historical Narrative, 44.

25. Quattrocchi, Hutchins, 151-52, 158-60, 162-63. Anthony Hutchins and his associates in Virginia and the Carolinas, reportedly gained 152,000 acres near Natchez and settled part of this grant in 1773, the same year Dunbar arrived in his search for land. J. F. H. Claiborne, Mississippi as a Province, Territory and State, with Biographical Notices of Eminent Citizens (1880. Reprint. Jackson, Miss.: Reprinted by LSU Press for the Mississippi Historical Society, 1964), 127. Thomas did not see his brother during his 1773 Natchez visit, since Anthony was back East, organizing families to settle in the area. Anthony's relocation to Natchez so soon after Thomas began his tour of duty in Pensacola seems an unlikely coincidence, but his biographer found no evidence that Thomas induced his older brother to settle in West Florida. A description of Natchez during this period was provided by Anthony Hutchins' son, John, reportedly the first male child of American parents in the area later known as Mississippi:

Natchez was a wilderness, a cane brake, the hunting ground of the Indian and the white man, where the buffalo the bear the panther and the wolf had their hiding places; indeed the whole country was a thicket of timber and cane in tangled masses. There was not a survey made of a single tract of land, not an ear of corn, with the exception of an acre here and there planted by the hand of savages for present use; very few farming utensils were brought by the emigrants, in consequence we opened the land slowly, we were many years without bread, living on wild roots and on the wild animals of the forest.... Hutchins (Odlin) Manuscript MDAH Z1757

26. Wharton, while living in Paris, was using his privileged information on the war, some of it supplied by Hutchins, to play English stocks to the two men's advantage. Quattrocchi, Hutchins, 186-95.

27. Ibid, 197-201.

28. Ibid, 206-09. "Hutchins," DAB 435. Hutchins shared the title of geographer with Simeon De Witt.

29. Quattrocchi, Hutchins, 216-18. Tregle, "Introduction," xxvii.

30. Quattrocchi, Hutchins, 221-223.

31. Ibid, 314. Jefferson had suggested in 1779 that astronomical measurements be made to fix the Pennsylvania-Virginia border. Hutchins worked with Rittenhouse and Ewing again in 1787 in establishing the New York and Massachusetts border. See Quattrocchi, Hutchins, 264.

32. Hutchins, Historical and Topographical, 93-94.

33. Crèvecoeur is quoted in Arthur Schlesinger, Jr.'s, The Disuniting of America: Reflections on a Multicultural Society (New York: W. W. Norton & Company, 1992), 12.

34. Quattrocchi, Hutchins, 229. Quattrocchi claimed that Hutchins did not originate the 6 square mile township and 1 mile square lots of 640 acres which has so influenced the lay out of American towns, but she believed that Hutchins was the first to incorporate its use. See pp. 304-05.

35. One of Hutchins' surveyors, Major Winthrop Sargent, the first governor of Mississippi and whom Secretary of War Henry Knox had recommended to Hutchins, lost eight horses in one raid. The raiders left Sargent a warning: a depiction of a headless man, carved into a tree. Quattrocchi, Hutchins, 234-35, 238-39, 252.

36. Ibid, 281-86, 295.

37. Quoted in Ibid, 206.

CHAPTER THREE
A SCOT IN BRITISH MISSISSIPPI

When William Dunbar reached Philadelphia and the New World in April, 1771, he declared the city "one of the wonders of the Globe; its age not fourscore years, & its magnitude said to surpass that of Glasgow." Philadelphia was also a place whose citizens "talked very good English."¹ Dunbar's assessment was not the opinion of an innocent abroad. His residence in London, then the largest city in the world, would have exposed him to the frenzy of urban rhythms, yet he still found the city of brotherly love exciting.

His enthusiasm may have arisen, in part, from the enormity of the task in front of him. He planned to venture overland to the edge of civilization to trade with the Indians. He had probably never seen a Native American at this point and though he was confident his plan would succeed, reaping a profit from his trade was not his greatest concern. Dunbar wanted no less than to establish a new house of Dunbar, complete with family lands and wealth. He was a clever man who could quickly adapt to changing circumstances. The new land would test him to the extreme. The place where he would settle not only offered him

constant challenges, it would transform him as he struggled to construct a pristine life. America's demands would also change the way that the Scot pursued scientific knowledge-- how he considered the world.

About Dunbar's early movements in America, the records are silent. His removal to the frontier required that he not only master new skills, his survival depended on a generous measure of good luck. Dunbar entered a place with uncertain laws and mores, where personal boundaries were tentative and life was harsh. As William Faulkner phrased it in Requiem for a Nun: "These were frontier, pioneer times, when personal liberty and freedom were almost a physical condition like fire or flood, and no community was going to interfere with anyone's morals so long as the amoralist practised somewhere else...."² After landing in America, Dunbar moved rapidly to carry out his plans. The precision with which he acted indicated careful thought and preparation, but he would soon learn to expect the unpredictable.

Dunbar ventured overland to Fort Pitt to trade his stock of goods with the Indians.³ Fortunately, he arrived during a period of relative tranquility. Although the fort and its nearby settlement, Pittsburgh, had struggled for survival in the years following British possession of Fort Duquesne in 1758, by 1768 the town and fort served as an

entrepôt for settlers moving south and west. When Thomas Hutchins left in 1768, the town of Pittsburgh boasted twelve two-story houses with walls of squared logs.⁴

After disposing of his goods to advantage, Dunbar ventured down the Ohio River, in search of land.⁵ After a hard journey up the Mississippi River to visit St. Louis and its environs, he descended the River, all the while studying the terrain which floated past. In the spring of 1773 he arrived in West Florida. After spending some time visiting the different settlements and exploring the lands, he "formed a design to establish a farm somewhere on or near the Mississippi." He made his way to Pensacola, the capital of British West Florida, and "petitioned ... for 1200 acres" between the Mississippi and Amite Rivers.⁶ He then returned to Philadelphia and formed a partnership with John Ross (1726-1800), a fellow Scotsman who was a merchant and a leading citizen.⁷

Dunbar's possibly enlisted Ross as a partner because he sought to lessen the financial risk for such a perilous venture. With his acute business sense, Ross perhaps saw an attractive investment opportunity with an intelligent and industrious Scot. Having arrived in America in 1763, only some eight years before Dunbar, Ross had already become a member of the American Philosophical Society, an honor that entitled him to associate with Benjamin Franklin and George

Washington; he even entertained Washington at the Grange, the Ross country home.*

The exact nature of Ross's and Dunbar's agreement is unclear but it involved a "copartnership" for an "agricultural adventure" near the Mississippi River, in British West Florida. In 1774, with the partnership formed and with 2,500 dollars, Dunbar sailed to Kingston, Jamaica, purchased some slaves and returned to Pensacola to claim his 1200 acres and begin his new life as a planter.*

To his astonishment, however, Dunbar discovered that his original petition would not be honored. He does not state the reason behind this blunder and he did not abort his plans because of it. He somehow secured a 500-acre site at New Richmond (Baton Rouge) and with twelve slaves and one indentured servant, began clearing the land.¹⁸

This smaller holding featured rich soil in a land scarcely settled. When Sieur d'Iberville's party had first spied this area in 1699, they wrote of a fertile place with high river banks populated by the Bayagoulas tribe, a people who befriended the French. Several of the explorers mentioned a 30-foot-high red pole, bedecked with fish and bear heads, which the Indians used as a boundary marker separating the hunting lands of the Bayagoulas and the Oumas, a neighboring tribe. This baton rouge served as a territorial marker, a sign of division and a beginning of demarcation that the Europeans, and Dunbar, would carry

forth in ceaseless plotting.¹¹ When Dunbar settled there, New Richmond rested on the Spanish-British frontier.¹² The ancient rivalry between these two nationalities would continually disrupt Dunbar's plans, creating an environment of uncertainty and intrigue.

Although he appealed his original land petition to Philip Livingston, the receiver general, Dunbar was frustrated by a lack of results. "You are mistaken," he wrote John Ross, "in supposing that settlers are entitled to lands." Although land in West Florida had been advertised as easily acquired, such ease eluded Dunbar.¹³

Nevertheless, his plantation records reveal that Dunbar remained active as he awaited a decision on his appeal. In June he wrote a trading firm in Kingston asking for seed samples of the island's curious plants and fruit trees, particularly the "pine apple." He experimented with numerous crops: rice, tobacco, flax seed, indigo, seed corn, buckwheat, and barley pease, neglecting cotton since "tis said the staple is too short." He also bought and sold Africans and ominously instructed his Jamaican source that "some of the negro tribes"--the "[Ibos] and [Cormanties]"--are unsalable. By July 1775, he seemed to have settled on a cash crop, reporting to Ross that he had already spent a few days with Daniel Clark, an Irish merchant in New Orleans, making indigo and that he planned to spend several weeks there in the future "studying the art." Starting an indigo

works required a great deal of start-up money for the necessary vats, pots, and other utensils. Dunbar estimated the cost to be about 400 dollars; nevertheless, he still believed "Indigo is the most profitable thing," and that "every other consideration must give way to it...."¹⁴

The following month, he changed his mind. "I have lately been taught to think," Dunbar declared, "that getting scantling [for barrel staves] for the French West India market is more profitable than Indigo making." Although West Florida offered a rich variety of wood, processed timber remained in short supply throughout the region. In 1774 the fort at Pensacola, with its stockades rotting, lacked boards for Thomas Hutchins' planned refurbishment--he could not even buy pickets, in spite of offering premium prices. Increasing trade in the region meant that scantling was in great demand; furthermore, stave and heading manufacture did not require indigo's extensive capitalization.¹⁵

In May, 1776, Dunbar reported the production of 1300 white oak Puncheon staves. By June 1776, he was fully committed to stave manufacture and ordered two cross cut saws seven-feet long, armed with peg teeth. A few months later, Dunbar boasted that the "country is now alive with stave making... Nothing is talked of but staves and every man that has it in his power employs himself in the manufacture of the article." So successful was the endeavor

that Dunbar confided to Ross that a slave "earns more than his value in twelve months" by producing staves.¹⁴

Despite the rich rewards promised by scantling manufacture, New Richmond failed to grow in population. Although British land grants in West Florida had steadily increased since 1768, large land owners encountered difficulty in convincing prospective settlers to risk the perils of hostile Indians, crude roads, and malignant fevers. Newspapers warned of torture and murder awaiting whites foolish enough to test the frontier. Those who lived upriver from Dunbar at Natchez, had only the beleaguered fort at Pensacola, an eight to twelve day trek over difficult terrain, as their nearest source of possible aid. Furthermore, the forces at Pensacola were ill equipped to send help--Native Americans constantly threatened the stockades, which were in chronic disrepair. Montfort Browne, a land promoter, complained that the long, arduous journey to Pensacola meant that "In the hour of surprise," the Mississippi farmer, "may as well look for assistance from the Tower of London." By any measure, Dunbar's surroundings stirred with danger.¹⁵

Although hazards lay close to his door, Dunbar's motivation to endure such risks extended beyond the customary dream of economic success. On September 5, 1775 John Swift, a London agent and friend, had written to ask Dunbar why he had not replied to earlier letters. Swift

also included news of the latest advances in Phlogiston theory, as well as details of a "fine Celestial Electrical Feast," which he enjoyed by using a "Jar," probably a Leiden Jar. Dunbar's friend also enclosed two pages of detailed meteorological measurements, a common practice in the eighteenth century so as to compare climates. His gesture probably meant that Dunbar reciprocated by sending Swift meteorological data for the lower Mississippi River Valley. More importantly, Swift mentions a continual concern for his friend: "Are you yet fix'd on a spot for your Observatory-- or do you still wander to & fro upon the Earth?"¹³

Although Dunbar lived beyond the realm of civilization, he could stay abreast of scientific advances through his various associations. His business partner, Ross, could apprise him of APS matters while Swift could report scientific advances in England. But Dunbar required more personal contact with fellow philosophes than that could be offered in letters: someone on the scene, with whom he could discuss and argue hypotheses and theory. Dunbar had this need met, if only temporarily, by William Bartram, a major figure in American natural history.

Bartram had left Philadelphia in March, 1775 with a grandiloquent and typically eighteenth-century intention: "the discovery of rare and useful productions of nature, chiefly in the vegetable kingdom."¹⁴ Bartram's trip fulfilled a dream of his famous father, John Bartram, who

had yearned some ten years before, to explore the interior of North America: "Oh! if I could but spend six months on the Ohio, Mississippi, and Florida, in health," the elder Bartram had exclaimed, "I believe I could find more curiosities than the English, French and Spaniards have done in six score of years." Unfortunately, he lamented, "the Indians, instigated by the French, will not let us look at so much a plant, or tree, in this great British empire."²⁰ By 1775, British dominance had provided enough security to allow the son to explore what the father could not.

Young Bartram reached Pensacola in early September, 1775, and presented himself to Peter Chester, governor of West Florida. Chester granted him a permit which read in part, "Know ye that William Bartram Botanist having requested my Leave ... to Travel through ... this Province,.. in order to make Botanical and other Observations I do hereby permit him to Travel ... for the purpose of Collecting Rare and useful productions in Botany and Natural History."²¹

Bartram made directly for the Mississippi River, reversing d'Iberville's earlier route. The botanist sailed through Lakes Ponchartrain and Maurepas, up the Amite River, over to the Iberville River (Bayou Manchac), reaching Manchac via the trading road that had been proposed by Thomas Hutchins.²² Although it was late October and the Mississippi would have been comparatively docile, Bartram

was nevertheless transfixed by the power and the width of the "great sire of rivers." Seemingly by chance, he met Dunbar in Manchac, who was evidently there on business. Dunbar extended to Bartram "a friendly and polite invitation to accompany him on his return home" to New Richmond."

Early the next morning, Dunbar and Bartram set off in a "handsome convenient boat, rowed by three blacks." They were probably conveyed in a canoe or pirogue (dugout), which was powered by oars and/or sails. The pirogue, usually some 40 to 50 feet long and 3 to 5 feet wide, was the most popular type of boat on the river. In late Autumn, up-river travel was comparatively easy since the Mississippi typically crept at a sluggish three miles per hour, much slower than its average springtime rate of five miles per hour. After stopping at an Indian village, where Dunbar bought some baskets and earthenware, they continued their pull up the river. After what seemed to Bartram to be 14 miles, they spent the night at a large and well-cultivated plantation which featured a "spacious garden" with "many useful as well as curious exoticks."²⁴

The following day they continued their ascent, stopping along the way to visit several plantations, and arriving at length at Dunbar's place, "a very delightful villa, with extensive plantations" of various crops. There the two men lingered one or two days and then set off again, this time for Point Coupée.²⁵

Bartram had promised Montfort Browne, whom he had met the past September, to explore some plains near the latter's 17,400 acre holding at the White Cliffs (near Port Gardner in present East Baton Rouge) which lay on the way to Point Coupée. On October 25, 1775, at White Cliffs, Dunbar and Bartram landed, secured horses, rode inland for almost eight miles, and emerged from the Cane forests into a sea of grass, "lying parallel with the river, surrounded and intersected with Cane brakes and high forest of stately trees; the soil black, extremely rich and productive."²⁶ They saw the verdant *Magnolia grandiflora*, the Liquid-amber *stryacflua*, *Telea*, *Morus rubra* and the *Laurus sassafras*, the latter's straight trunk prized for producing boards and scantling.

The next day, they returned to the river and reached Point Coupée. This was a well-established settlement on the river--a place of great fertility and wealth. Each planter there reportedly owned between 20 and 100 slaves. There they called on one of these planters, a French gentleman, whom Bartram described as "an ancient man and wealthy planter ... his hair was of a silky white, yet his complexion was florid and constitution athletic."²⁷ After a single day there, they returned to Dunbar's plantation. Bartram had to rest at this point due to a "severe disorder" in his eyes, which may have been the result of scarlet fever.²⁸

Bartram's eye problems proved serious enough for him to return to Philadelphia. Dunbar most likely lamented Bartram's departure. During their nine days together, they had shared a deep pleasure in discoveries; discussions of the area's vast flora had quickened the young Scot's botanical interests. Dunbar's spontaneous adventure also indicated that his plantation operated well enough at this time to allow unexpected absences. But he still had much work to do. Before Dunbar could devote himself to the systematic study of the earth and the stars, he had to organize his surroundings.

Two of Dunbar's early entries in his Richmond plantation journal indicate the central role his slaves played in his aspirations. Dunbar's first journal entry, dated May 27, 1776, reads "The Plantation Negroes are in Number 14 [of whom] 7 Men & 4 Women work in the field & 3 Women [are] at present in the House--There are also 23 New Negroes for sale who are employed about the business [of] the Plantation as occasion requires." The following day he wrote: "Took off 5 men from the staves in the afternoon, 2 employed in falling trees & three in Continuing the line between Marsh[alls] [fragment]."²⁹ Dunbar's traffic in slaves remains unclear but the constant turnover on a frontier plantation, the admixture of workers from various

tribal backgrounds, and the enormous labor required to tame the land and manufacture staves, invited slave unrest.¹⁰

Dunbar attempted to tame land and slaves by creating a rigid dominion, the operations of which he recorded in his farming journal. The plantation journal showed his exactness of mind: what happened, what results were obtained, what labor was extracted. These recordings, like the scientist's notebook, became an essential component of his life on the borders.

As numbers rule science, so did they direct his plantation. "8 Negroes with Mr. Simpson [the overseer] employed in stave [making;] Made 2 hundred staves & a half hundred heading; 18 weeding Corn; 5 weeding Indigo & the Garden; 3 sick."¹¹ This was the calculus of Dunbar's plantation. He kept close notes on heading and stave production and refined ways to increase output, carefully objectifying slaves and production.¹²

With his land and slaves, Dunbar was part of a growing planter community, and he enjoyed socializing and competing with fellow "gentlemen." "On Sunday 23d of June I dined at Mr. Marshall's with Messrs. Pousset & Francis, & being all of us stave makers, we agreed the ensuing week to have a trial of skill..." to see which plantation could produce the most staves for the upcoming week. Dunbar privately recorded his confidence over this wager: "I intended regulating the work among my People in such a manner that I

had not the smallest doubt / from former experiments / of making at least four Thousand staves." He wrote as a master sure of his capabilities."

The "gentlemen of the community," far from the drum of urban life, had formed a typical eighteenth-century social club. They "dined alternately at each other's houses, and the wit and the joke & the laugh went around."⁴ Dunbar's journal entries reveal that he most frequently visited François Pousset, William [Billie] Marshall, and a Mr. Francis. On occasion he would pass an evening with these men engaged in "microscopic observation" or telescopic scanning of the sky."

But social clubs, the making of chattel staves, and land surveys could give only the appearance of social order. On June 24, 1776, the day on which the wager was to begin, Dunbar received a disturbing visit from Pousset, Francis, and Marshall. "They informed me that a conspiracy among [fragment] Negroes had been discovered, & that it had taken [plac]e at my House; The Names of Three were mention[ed] who with a negro of Watt's & Flowers were said to be the principals." Dunbar was stunned by this news. "Judge my Surprise! Of what avail is kindness & good usage when rewarded by such ingratitude." He considered himself a fair master and yet, he harbored some doubts. "'tis true indeed, they were kept under due subordination & obliged to do their duty ... but two of the three had always behaved so well

that they had never once received a stroke of the whip." But with his fellow planters standing before him with such dreaded news, doubt was not a thought he could long entertain. "I immediately sent to the field," he wrote, "where they were a making staves to call in one of the Principalls.""

Continuing with the story, Dunbar described how the man was seized and "bound with cords, still ignorant of the Discovery we had made." They then proceeded to interrogate him. "When questioned he seemed to know nothing of the matter and when confronted by Mr. Ross' Negroes / the Informers / who had the story from himself, he still persisted in his Innocence & Ignorance." The man was in a tight spot and knew it; yet, he immediately offered a defense that showed how well he knew his master's mind. As Dunbar recorded it, the slave "mentioned as an argument Why [the charge] must be impossible; that he had now b[een] Considerable time with his Master, that he had [fragment] fed & Clothed him well & had never once struck him & of course it was absurd to suppose him guilty.""

This nameless slave, (although Dunbar will, after this episode, frequently mention his slaves by name) knew how damning it was to be denounced by fellow slaves and perhaps knew that he would not survive the accusations. He was taken up river some four to eight miles to Pousset's, perhaps to implicate others in the plot. One of Pousset's

slaves also fell under suspicion. Dunbar's man was then returned to the boat for the trip down river so that the owners could "seize the rest of the criminals." Dunbar's slave probably now understood how events would unfold and decided to alter the planters' designs for him. Dunbar described what happened next. "My Negro was sitting in the bottom of the Boat with his arms pinioned," Dunbar reported. "He was 'tis supposed stung with the heghnousness of his guilt, ashamed perhaps to look a Master in the face against whom he could urge no plea to paliate his intended Diabolical plan." At this point, the bound man acted. "He took an oppy in the middle [o]f the River to throw himself overboard & was immediately drowned--This was sufficient Evidence," Dunbar concluded, "of his guilt."

At this point the owners redoubled their efforts to purge the area of suspected insurrection. Two more of Dunbar's workers were seized that evening, along with slaves from other plantations. For the remainder of the week, additional Africans were imprisoned, and a trial was speedily set for the following Monday, July 1, 1776. Immediately after the proceedings, three of the condemned, two of whom belonged to Dunbar, were immediately hanged, while others received lesser punishments."

In one day, Dunbar had been transformed from a confident master, sure of his ability to maximize his slaves' efforts, to near victim--if indeed plans for

insurrection had ever existed. Still in his twenties, his optimism for wresting a fortune from the land shaken, he fell into an uncharacteristic depression, owing not only to the threat of rebellion but to the justice administered to slaves he had implicitly trusted. "These accidents hath occasioned such fatigue," he wrote, "both of body & mind, that stave making hath been discontinued till the present time [12 July 1776]." The weariness continued, however, as reflected in his next entry on July 20: "Having continued very sick since friday [?] 12th I have been unable to continue my Journal,..." He even reached out to his mother with his distress and she wrote him back to say that she was "sorry for the death of the negros."⁴

Toni Morrison uses this sickening drama to elaborate her provocative thesis on "American Africanism"--the idea that American literature cannot be properly understood without the background of the African presence.⁵ To Morrison, Dunbar embodied absolute power; he incarnated three metaphors in American literature: whiteness, individualism, and acute and ambiguous moral problems and it was the Africans who shaped these elements, giving life to whiteness, individualism, and morality. These men and women, forcibly taken from their homes, chained, and then confirmed as property on an auction block, correspondingly intensified white autonomy and self direction. These Africans did not just shape and subdue the land, they framed

their owners' singularity. The scent of rebellion threatened both planter safety and white self perception--and the owners reacted violently."

The planters' panic in this tragic drama belied their confidence in mastery. Ironically, the informers, Ross's slaves, the directors of the alleged intrigue, controlled events and the young Scot could not have countered their accusations. He was swept along in the furor and, subsequently, suffered a heavy financial loss. Ordinarily, the law dictated that owners, whose slaves were executed by the court, were entitled to some compensation, but "at present," Dunbar wrote, "there is no Assembly & consequently no monies can be raised." Although a subscription was started for the masters of the condemned men--the community believed that "these executions were for the general good of the Country" and everyone should shoulder the loss--Dunbar doubted he would see adequate reimbursement. Four slaves died as a result of these actions and three of them belonged to Dunbar. These lost men, he informed John Ross, "were perhaps the best negroes in the Colony."

The executed slave who did not belong to Dunbar had been the property of Stephen Watts and Samuel Flowers. Coincidentally, all three planters shared similar characteristics. They were well educated. Watts had graduated from the College of Philadelphia in 1762, elected a member of the American Philosophical Society, and

practiced law. A Loyalist, as was Dunbar, Watts had purchased a Louisiana plantation in partnership with Samuel Flowers in 1774.⁴⁴ Flowers was a physician in the Manchac area and he and Watts had worked with Dunbar in trading slaves. The flux of souls through the two plantations may have prepared the stage for the reported rebellion.⁴⁵

Dunbar's reflection on the events of June 24 reveal his reservations about his bondsmen's guilt. He recorded his initial doubts about his slaves' involvement in the purported conspiracy: two of them, after all, had never required the whip, but he was hostage to events. Even if he could have openly questioned the substance of the threat, the irretrievable break between England and the upper colonies heightened the need for unity among the area's Loyalists.

The reasons behind the intrigue may never be known, but the reign of suspicion and accusation reflects more of a dialectic between slave and master than a display of planter autonomy. In Roll, Jordan, Roll, Eugene Genovese claims that southern law became an "active, partially autonomous force" created by planters to control other classes--but, he added, the law could also be used on the planter and thus sweep him along the current of events. Even though the supposed plot unfolded in the germinative period of southern law, the inexorable tide of autonomous force carried Dunbar with it.⁴⁶

Genovese's view resembles Morrison's idea of planters' irresistible autonomy, but neither theory goes far enough. The role of place must also be considered in the interchange. Rivers, disease, weather, geography, and numerous other features of the lower Mississippi River Valley routinely shaped settlers' lives, thus creating a triform dialectic of master/slave/nature. Planters tried to govern nature through their enslaved population but the environment could also prove unpredictable. Since environmental pressures affect farming more than they do most other human activities, the swirl of interplay influenced every component of planter and slave life. In Dunbar's case, the enormity of this interaction permeated both plantation life and scientific ventures.

In the late 1770s, society in and around New Richmond began to change dramatically. Events in the revolution against British rule were bound to affect even this loyal district where royal troops were welcomed as protectors--not reviled as occupiers. But Loyalist and Patriot alike were attracted to the fertile soil of West Florida and the strategic importance of Spanish New Orleans as a source for much-needed Patriot supplies set the stage for conflict."

To procure materials from New Orleans, the American government in 1778 appointed Oliver Pollock as its commercial agent, charging him to acquire munitions and to

spy for the Revolutionaries.⁴⁸ Pollock, a well-known resident of New Orleans, had moved to the city in 1768 to become a planter and financier.⁴⁹ In 1772 he had acquired 1000 acres which lay close to the site of Dunbar's plantation.⁵⁰

Aside from the presence of refugees, the deterioration of forts, and other inconveniences, the fight over North America was largely removed from West Florida. But on May 1, 1778, the revolution came down the Mississippi River. James Willing, a captain in the patriot army and who Dunbar reported "had left this Country the year before; perfectly & intimately acquainted with all the Gentlemen upon the river at whose houses he had been often entertained in the most hospitable manner & frequently indulged his natural propensity of getting Drunk," had returned.⁵¹

Born to a wealthy Pennsylvania family, Willing had an older brother, Thomas, who was Robert Morris's partner in the firm of Willing and Morris. Young Willing had come to Manchac in 1772 and acquired 1,100 acres of river land, located some 120 miles below the Natchez fort.⁵² He formed a mercantile partnership with Oliver Pollock who was then in New Orleans.⁵³ Willing's plantation lay close to Dunbar's and the two men were bound to encounter each other periodically, although Dunbar probably avoided the unsavory character. In 1774, Willing moved to Natchez, fell deeply

into debt, defaulted on his loans, and returned to Pennsylvania in 1777.⁵⁴

Willing knew first hand the wealth of the lower Mississippi planters. Now that he was back in Philadelphia he could indulge his plans for war-time conquest and with Robert Morris's support and a gunboat named "Rattletrap," he sailed down the Mississippi River in 1778. Willing was supposed to transport supplies from New Orleans, and, in his mind, "to make prize of all British property on the Mississippi River."⁵⁵

News of the Americans' advance alarmed the residents along the river, though most supposed the rebels would not bother the peaceable inhabitants. However, Dunbar was not one to rely on assumption or speculation and actively inquired as to the Americans' intent. To his chagrin, he learned that Willing intended to "rob & plunder Every English subject who had property of any value Some few excepted, & that several obnoxious people were to meet with particular marks of their displeasure in this latter black list," a list on which Dunbar's name appeared. Willing intended to have his revenge.⁵⁶

Upon reaching the lower valley region, the American brigands greedily looted plantations from Natchez to Manchac: Dunbar, Anthony Hutchins, Harry Stuart, Stephen Watts, and numerous others suffered great losses. Dunbar, who had sought refuge "In the Accadian Country," angrily

reported that "the Houses of the English Gentlemen on the British side were plundered & among the rest mine was robbed of every thing that cou'd be carried away--all my wearing apparell, bed & table linen; not a shirt was left in the house." His most valuable possessions though, his slaves, he had spirited over to the Spanish side at the first notice of trouble."

Dunbar's situation revealed the heterogenous and almost anarchistic state of the frontier. Spanish territory--presumably a safe haven--was but a river's width away, but Spain was openly aiding the patriots. Most residents living south of Dunbar were not even Spanish. English speakers lived on Dunbar's side of the river, from the Iberville up to Point Coupée, but south of this stretch of land was the French Acadian Country or Acadian Coasts and below that lay some Dutch communities." Dunbar does not specify where he took refuge, but he evidently felt safe there. The Scotsman in an English community mixed easily with Acadians, Loyalists, French, and Spaniards.

Planters' reactions to Willing varied. Some were justifiably outraged at Willing's affronts. Anthony Hutchins, Adam Chrystie, Charles Percy, and others beat back subsequent raids by Willing's banditti; reinforcements, which finally arrived from Pensacola, captured Willing and effectively ended the threat. Willing's actions could have turned the Mississippi planters against the Americans, but

Dunbar and others who knew Willing believed that the failed merchant had acted more for personal gain than for a cause. They did not condemn the Patriots but labelled Willing's band as "Villains," and "Rascalls." Dunbar even declared that it "Would be a prostitution of the name of Americans to honor them with such an apellation."

An uneasy calm descended on West Florida after the Willing affair. A detachment of British regulars from Pensacola arrived at Manchac in June 1778 and Dunbar made an agreement with the fort's engineer to supply pickets, ten-foot long and six-inches square, for the garrison there (presumably Fort Bute). In October, amid rumors of yet another invasion by the Americans, Dunbar thought it prudent to buy a plantation on the Spanish side of the river nearly opposite his current holding.⁶⁰ Work progressed on both plantations as seven men and one woman labored on the English side and five men and nine women worked the Spanish side.⁶¹ Dunbar delivered 1870 pickets to the garrison at Manchac on October 26, 1778, for which the canny Scot received 828 dollars.⁶² In December, he reported that the young Spanish Governor, Don Bernardo de Gálvez, had paid a friendly visit to Manchac's English officers and that the governor had confirmed rumors of an alliance between Spain and England: "an incident very much to be desired by the Inhabitants." But stability proved illusory.⁶³

In February, 1779, Colonel Alexander Dickson, whom Dunbar had earlier befriended, arrived at Manchac with part of the 16th regiment to reinforce the 65 regulars who had been ordered there the previous year.⁶⁶ The Mississippi River was in full flood at the time, "higher than ever it has been known in the memory of man" and the swamp-like conditions frustrated British efforts to secure the post. Colonel Dickson decided that Manchac could not be defended and gathered most of his men near New Richmond at a redoubt constructed on the plantation of Watts and Flowers.⁶⁷

Although having declared an alliance with England six months earlier, the Spanish authorities could not resist the ripe plum of West Florida. As the British became increasingly preoccupied with the northern colonies, Spain declared war on England, June 21, 1779. Accompanied by Oliver Pollock, Galvez overwhelmed the small British force left at Manchac on September 7th, and, following a few days rest, set his sights for New Richmond and Dickson.⁶⁸ The new fort hardly slowed Gálvez' progress. He breached the ramparts by using a strategic feint and Dickson quickly surrendered both his post and the entire Natchez District, on September 20th.⁶⁹

With the declaration of war, peril now lay north and south of Dunbar. The Spaniards had seized him in August while he was in New Orleans on business, detaining him until the fall of the garrison at New Richmond.⁷⁰ Again,

opportunists plundered Dunbar's house, inflicting a 600 to 700 dollar loss.⁶³

Undaunted and still opportunistic, Dunbar began providing lumber to the new Spanish garrison in New Richmond in January 1780. Like most other planters in the area, he quickly adapted to Spanish rule. "I should have no objection to live under a Spanish or any other well regulated government," he wrote, "provided my time was not misspent[.] I am at all times sufficiently prudent and circumspect to avoid[?] giving the least umbrage to government."⁶⁴

Dunbar's tact hinted at the way he, and others, lived under changing regimes. Nevertheless, he retained some loyalty for England as indicated in a letter to John Ross. "There is no need of the name of American," he wrote, "to make my residence agreeable, as I have hitherto gone by the name of a Royalist,.. I do not wish to rank among the class of Turncoats--of which we have a good many and who are little respected on that account."⁶⁵ Regardless of where Dunbar's allegiance lay, Spain ruled the land--or, so it seemed.

While Spanish troops overran West Florida, Loyalists there, ironically, now became rebels. In the spring of 1781, those true to King George positioned themselves for control of the settlement at Natchez. The war between Great Britain and Spain in North America, though favoring Spain thus far, was still far from settled in many minds. The

Natchez rebels, exhorted by General John Campbell, the British commander at Pensacola, and the indefatigable Anthony Hutchins, who was this time accompanied by fellow British officer, Captain John Blomart, tricked the Spanish commander at Fort Panmure into surrendering on April 29, 1781.¹³

Fidelity to one's country proved difficult during this period. As the settlers in Natchez revolted, Dunbar, who by now was no doubt thoroughly tired of history repeating itself, was back in New Orleans on business and was again placed in Spanish custody.¹⁴ He evidently kept to himself his alliances, unlike the headstrong Hutchins brothers, Anthony and Thomas: while Anthony and his fellow Loyalists/Rebels looked eagerly for Pensacola's promised reinforcements, his brother Thomas, having switched allegiances, was hurrying to join Nathaneal Greene's American regiments.¹⁵

Unfortunately for Anthony Hutchins and his fellows, their ill-timed overthrow of the fort came as Pensacola shook under a relentless bombardment of cannon shot, directed by the unswerving Gálvez.¹⁶ Pensacola fell on May 9, 1781. Traditional accounts declare that news of Pensacola's defeat finally reached the rebels in the dramatic form of a mounted courier, galloping onto the field of battle, just as the Loyalists were mounting a charge against Spanish reinforcements.¹⁷ The news doomed the

rebellion, and those leaders who were not captured, fled eastward."

Surrendering to the Spaniards would have been considered unwise by anyone who had read Captain Philip Pittman's The Present State of the European Settlements on the Mississippi (1770). Pittman described the fate of those who had rebelled against Spanish rule 12 years earlier, in New Orleans. "Great and solemn preparations," Pittman reported, "were made for the trial of the prisoners charged with high treason, who [underwent] a cruel and rigorous imprisonment." Following their harsh interrogation, the imprisoned men "were brought before the high court of justice, as it was called, (it was more properly a court martial,..) all the prisoners were found guilty of the charge exhibited against them." The sentences handed down reflected Spain's opinion of those who tried to end Spanish rule. "Five were sentenced to be shot, and seven to be confined for ten years to the Moro castle at the Havana. Those condemned to death were executed the day following."

Hutchins declined to await Spanish intentions and fled. Reports circulated that the Spanish had offered their Indian allies a reward for Hutchins' scalp. After narrowly surviving an ambush, avoiding starvation by eating snakes, worms, nuts, and finally, his horse, and being taken

prisoner by Indians not sympathetic to the Spanish cause, Hutchins eventually made his way to London."

In this sea of confusion, when one could not be certain which flag would be lifted into the breeze on a given day, Dunbar kept his own counsel. His finesse was verified by a list given Oliver Pollock in New Orleans, dated December 2, 1781, which classified Dunbar as a "Moderate Royalist," the milder of two categories, the other being "Violent Royalists." Many of this latter group, such as Thomas Dieas, Francis Pousset, William Marshall, George Ross, John Gordon, and Alexander and William McIntosh had frequently dined with Dunbar in his home at Richmond and constituted the group with which he was most closely associated."

The increasing intensity of the war for American Independence and Spain's invasion of British West Florida hardened loyalties among the British emigres: one either supported England or opposed her. In spite of his earlier admission to Ross that he did not wish to be seen as a Turncoat, Dunbar nevertheless may have suffered social slights for his slack embrace of Georgian rule. In a 1782 letter to an unknown acquaintance he wrote, "Between you & I, I have been a good deal down in the snow as they say in our country.... I cannot hear from John Ross, his vessel's at Sea and you know what a friendless dog I am."¹ Perhaps Dunbar recognized the futility in choosing sides. He wished to establish a comfortable living yet wars, plots, and

invasions continued to block his way. He summed up his plight in a letter to John Ross: "Your idea of the increased value of our plantation would have been founded in reason had no circumstances intervened to oppose our endeavour."²

The march of armies across West Florida during the revolutionary period created unstable political boundaries. Britain, the North American colonists, Spain, and even France all clamored for the lower Mississippi: Dunbar would have lived under any one of these governments provided that his could hold his possessions and thrive. Although he may have alienated some of his more virulent Loyalist friends, Dunbar followed a larger trend after 1779 in that he and his fellow planters, more concerned about economic survival than national loyalty, pledged their oath to Spain.³

The struggle to endure meant that Dunbar's science had to lay fallow. Rebellion had eroded his position as a British subject and the many vocations he pursued--trader, surveyor, planter, gentlemen, prisoner--revealed his high level of adaptation. Additionally, the turmoil thwarted extended scientific contributions, preventing Dunbar from adding to the impressive Scottish endowment in American science.⁴

Life on the frontier would continually throw up difficulties throughout Dunbar's life, but in spite of frequent disappointments, he carried on his dream of scientific pursuits. When political and economic stability

were established, his scientific work went forward. As the author of the short biographical piece "Notices of the Life & Character of W.D. Late of the Forest near Natchez," stated, "The moment was approaching, when the studies of [Dunbar's] earlier days might be renewed, uninterrupted by struggles for subsistence & when his literary [propositions?] might be indulged without restraint."

However, even with the prospect of Spain's competent rule and the accumulation of wealth, the settlers in the Baton Rouge and Natchez Districts still encountered uncertainty. The various tribes, especially the powerful Choctaws, made the frontier a dangerous place. For Dunbar, the only country that had not threatened him had been Britain and now he resided under the flag of his country's bitterest enemy. After the war, national loyalty in the north evolved more easily than it did in the south. In Spanish West Florida, a diverse population under Spanish rule could not embrace such national pride--they were a conquered population.

Likewise, after Paris, the thirteen colonies could draw on the intellectual dynamism of Philadelphia, Charleston, and Boston to renew scientific enterprises. Spurred in large measure by Thomas Jefferson's commitment to science, the new country's leading scientific figures began to use science to enhance the country's position in the world as intellectual chauvinism surged through the former

colonies."⁶ Jedediah Morse's American Geography (1789) and Nicholas's Pike A New and Complete System of Arithmetic, Composed for the Use of the Citizens of the United States (1788) were unapologetically penned for the particular benefit of Americans. But the highest level of this American expression, aside from Jefferson's Notes on Virginia, was reached in Noah Webster's Grammatical Institute of the English Language (1783-1785). Webster wished to Americanize English, but America should not just have a distinctive language, he claimed, it should cultivate science and next to Scriptures, scientific texts would "lay the basis on which all ... future improvements must be built."⁷ No such resources or motivations were available in Spanish West Florida.

Enlightenment ideas of freedom and knowledge informed American culture. In Europe "Their souls are fetter'd with tyrannic power" claimed the cleric Samuel Cooper of Massachusetts, and there science reigns no more--an incredible claim. But in America, Cooper believed, independence prepares the mind "for the impression of the most exalted virtues, as well as the reception of the most important science."⁸

Dunbar resided in a colony that had remained loyal to England and was now a prize of Spain's; he was not privy to the cultural nationalism of the north. But he undoubtedly

welcomed stability and sure rule--the grounding of these pillars of civilization secured his economic future.

ENDNOTES

1. "Notices of the Life & Character of W.D. Late of the Forest near Natchez," [4], Dunbar Collection. Series 3, Box 1, Folder 11, MDAH. "Extracts from the Letter Book of William Dunbar of the Forest: From 18 June 1775 to 20 March 1802, Together with a Biographical Sketch," 2, Library of Congress, William Dunbar, MMC-alpha. Dunbar's remarks on Philadelphia are taken from two sources: the "Notices" and the "Extracts." Both are secondary sources, the "Notices" ascribed to Dunbar's son-in-law, Samuel Postlethwaite, and the "Extracts" credited to B. L. C. Wailes. Both manuscripts' almost identical retelling of Dunbar's description of Philadelphia indicates that they were copied from the same source. The "Notices," runs to only twelve and one-third pages and its author states it was begun six years after Dunbar's death. The author also describes him or herself as a "humble friend" of Dunbar's, unlearned and ungifted. These remarks make it hard to believe that Postlethwaite, a successful banker who died in 1825, wrote this memorial. The pages are unnumbered up through leaf 8; see leaves [4], [8]. The author used some of the same sources cited by the "Extracts," -- sources no longer extant, e.g. a letter quoted in the "Notices," [7-8], appears also in the "Extracts," pp. 22-23. The author of the "Extracts," uses dollars when mentioning monetary amounts. See for example, page 2. The "Extracts" is much more substantial, running to 75 pages. I use double quotation marks when quoting material from the "Extracts" even though this source is a copy of an original; subsequently, the reader should realize that the "Extract" may be subject to error. Charles S. Sydnor in A Gentleman of the Old Natchez Region: Benjamin L. C. Wailes (Durham, N.C.: Duke University Press, 1938), 308 argues that Wailes penned the "Extracts." Some interpolations appear to be in Wailes's hand and his name, in Wailes's handwriting, appears in an interpolation on page 59. However, the script of the "Extracts" does not match Wailes's handwriting, suggesting two possibilities: Wailes was writing his impressions on an extant document -- the "Extracts" was written by someone else and Wailes simply added his comments -- or, more likely, he used an amanuensis to make extractions from an original which is now lost. Support for the latter possibility comes from Wailes, who declared in his 1859 inaugural address to the Historical Society of Mississippi, "I have availed myself in past years of opportunity which I enjoyed in making extracts from the

private journal of Mr. William Dunbar the astronomer,..." Wailes (BLC) Papers, S1, B1, F20, [10] (pages unnumbered). Wailes use of the word "extract" is telling here although the extant "Extracts" consists of excerpts from a letter book, not a journal. If Wailes was indeed the recorder of the "Extracts," his penchant for accuracy and his care in preserving documents enhance its reliability. The Library of Congress houses the "Extracts." As for the original document which Wailes studied, almost identical quotations appear in both the "Extracts" and in J. F. H. Claiborne's history of Mississippi. Claiborne either carelessly copied passages from Wailes' copy, or, Claiborne, whose interest in Mississippi history exceeded even Wailes' tireless capacity, used Dunbar's original letter book. It is difficult to decide. Wailes freely lent Claiborne materials on Mississippi history, but Claiborne, grandson of Anthony Hutchins, son of General Ferdinand L. Claiborne, and nephew of William C. C. Claiborne had access to many important documents. Most importantly, he married Martha Dunbar, and gained possession of some of William Dunbar's papers. See Sydnor, Gentleman, 137, 255-56. If Claiborne owned the original letter book, then the book was probably lost when Claiborne's residence, Dunbarton, was consumed by fire in the 1880s.

2. Mary Douglas uses the Faulkner quotation in her Cultural Bias (London: Royal Anthropological Institute of Great Britain and Ireland, 1978), 9, to describe the features of a competitive society: innovation, makeshift rules, and exchanges that typically operate at extremes of tolerance and intolerance.

3. "Extracts," 2. Dunbar's exact movements, and their timing, during his first two years in America remain unknown.

4. Anna Margaret Quattrocchi, "Thomas Hutchins, 1739-1789" (Ph.D. diss., University of Pittsburgh, 1944), 96.

5. "Extracts," 2. Dunbar probably left Fort Pitt in the spring of 1773 to take advantage of the Ohio's annual flooding. Thomas Hutchins had determined back in 1768 that no large boat should depart the fort after June 10th due to the numerous shallows in the river. When the water was low, Hutchins estimated that it took 25-30 days of constant rowing to reach the mouth of the Ohio. Quattrocchi, Hutchins, 97.

6. "Extracts," 27. A Family Right grant allowed the head of a family to secure 100 acres for himself and an additional 50 acres for each family member or slave in his entourage. Purchase Right enabled settlers to buy up to 1000 acres more

than what they could obtain by Family Right, as long as the land was improved. Dunbar reported that, when he petitioned for the land, the number of his family was small. This statement suggests that he was accompanied by 3 persons, perhaps slaves and an indentured servant, at this time. See "Extracts," 10.

7. Ibid, 27. Franklin Riley claims that William traded for two years before joining John Ross. See "Sir William Dunbar," 86. How Dunbar and Ross met is not known. It is possible that Dunbar formed his alliance with Ross before the former left for Fort Pitt. The Natchez historian, Edith Wyatt Moore, claimed that Ross's parents were tenants on the Dunbar estate in Morayshire. See the Natchez Democrat, Pilgrimage (Pink) Edition. While this helps explain Dunbar's and Ross's familiarity, Moore may be in error since on November 17, 1810, Samuel Postlethwaite wrote to Sir Archibald Dunbar--the son of William's half-brother and inheritor of the family title--at Northfield, stating that the parents of Alexander Ross (no relation to John Ross) were tenants on Sir Archibald's grandfather's estate. Dunbar, Life, 383-384.

8. For biographical information on Ross see James Grant Wilson and John Fiske, eds. Appletons' Cyclopaedia of American Biography, v. 5 (New York: D. Appleton and Company, 1888), 329-30. Dunbar also named one of his plantations The Grange. See his Last Will and Testament, Adams County Courthouse, Natchez, Mississippi.

9. "Notices of the Life & Character of W.D. Late of the Forest near Natchez," provides some of the details of Dunbar's early activities in America.

10. Johnson, "Distribution of Land," 551-52. "Extracts," 10-12.

11. Rose Meyers, A History of Baton Rouge, (Baton Rouge: Louisiana State University Press, 1976), 6-7. Accounts differ on whether or not the town of Baton Rouge took its name from the boundary marker, or from some other manifestation.

12. Dunbar, Life, 64. The entry for October 10, 1778 gives an idea of Dunbar's plantation locale.

13. "British Land Grants -- William Wilton Map, 1774," compiled by Gordon M. Wells in the Journal of Mississippi History 28 (May 1966): 152-160 provides names, dates of acquisition, and acreage for British Land Grants along the Mississippi River from Manchac, at the mouth of the Iberville River below Baton Rouge, up to the mouth of the

Yazoo River. Dunbar's and John Ross's names do not appear on the Wilton map nor on the British Public Record Office's "Colonial Office Maps Florida No. 55 'Names of the Proprietors of Land on the Rivers Mississippi, River Amit[e], &c.'"; Margaret Fisher Dalrymple, ed. The Merchant of Manchac: The Letterbooks of John Fitzpatrick, 1768-1790 (Baton Rouge: Louisiana State University Press, 1978), 19.

14. "Extracts," 9-11. Dunbar may have experimented with cotton since William Bartram, who visited Dunbar in October 1775, reported that he saw Corn (Zea) [Indian Corn] Indigo, Cotton and some Rice growing at Dunbar's plantation. William Bartram, The Travels of William Bartram. Naturalist's Edition, ed. Francis Harper (New Haven: Yale University Press, 1958), 272-273.

15. "Extracts," 13. Although Pensacola was considered strategically vital in the Gulf region, the fort became less important with the growing unrest in Britain's upper colonies. All work stopped at the fort in 1775 so that more money could be used to suppress the rebellion. Quattrocchi, Hutchins, 152-55.

16. "Extracts," 13, 15, 17. Life, 23. A puncheon is a large cask with a capacity varying from 72-120 gallons. Most of the staves were made of white oak, although red oak and cypress were also used. Dunbar's people also made headings, the barrel ends. Stave making was arduous and required skill. After cutting the tree down with an ax, the workers was traditionally sawed along the tree's length, cutting it first into halves, and then into quarters. The quarter cuts were sawed diagonally across the rings. (Jenny Carter and Janet Rae, Traditional Crafts of Scotland (Edinburgh: Chambers, 1988), 107. Dunbar had purchased seven-foot long, cross-cut saws with peg teeth for stave making. "Extracts," 15. Slaves used froes to rive the wood into staves. Life, 41. Some precision was required if the staves were to fit tightly together. Dunbar sent his first shipment of staves to Jamaica in October 1776 and he wondered how they would be received and whether or not they would contain defects. "Extracts," 15. Dunbar did not exaggerate in how quickly slaves could cover their purchase price through stave production. In October 1776, white-oak staves cost slightly over \$30.00 per thousand. (Dalrymple, Merchant of Manchac, 213) During that month, Dunbar's stave makers averaged about 1080 white-oak staves per week (ca. \$130/month), a low output for his workers (some of Dunbar's slaves averaged over 200 staves a day). Life, 37-39. Dunbar recorded slaves selling on the Mississippi River for \$250 to \$300. Slaves were also traded for staves. "Extracts," 9, 16. Dunbar would offer prizes, such as a green Jacket, to top producers. Life, 41. Most of Dunbar's plantation diary,

covering the years 1776 to 1780, is devoted to stave production. The French had engaged in stave making at the beginning of the eighteenth century. The Mississippi forests provided the materials for masts, casks, construction lumber, shingles, pitch, tar, and turpentine. Although many planters sent their products to the West Indies, the British prohibition against trade with the French islands between 1768 and 1776, hurt some planters. John G. Clark, New Orleans, 1718-1812: An Economic History (Baton Rouge: Louisiana State University Press, 1970), 192.

17. Quoted in Robin F. A. Fabel, "An Eighteenth Colony: Dreams for Mississippi on the Eve of the Revolution," Journal of Southern History 59 (November 1993): 663. However in a July 6, 1768 letter to the Earl of Shelburne, Brown extolled the discovery of a lake passage to this part of West Florida that shortened the journey from Pensacola from sixty or seventy days down to ten or twelve days. This lake route was surely the d'Iberville passage. See Howard, "Colonial Natchez," 165-166. A lively description of wilderness hardships appears in a manuscript prepared by Anthony Hutchins' grandson, Odlin, entitled "Reminiscences of Col Anthony & John Hutchins," MDAH Odlin Hutchins Manuscript, 21757. The narrative is attributed to Anthony's son, John. In it, John recalls the heroic tenacity of his family as they battled the wilds. In one instance, he reports that the children learned to shoot rifles at such an early age that they did not have the strength to aim and so they carried forked sticks, akin to those used with a harquebus, to serve as a brace when they fired. See also John Q. Anderson, ed. "The Narrative of John Hutchins," Journal of Mississippi History 20 (January 1958): 9-10, which recounts many of the same stories that appear in the Odlin Hutchins manuscript.

18. Kammerdeiner Collection, "John Swift to William Dunbar, September 5, 1775." We never learn the reason behind Dunbar's silence. Although Dunbar kept exacting meteorological registers later in life, none from his New Richmond period have been found. In 1774, Joseph Priestley had begun his experiments on the calx of mercury which would lead to the downfall of phlogiston theory. In 1775, Priestley was still working within phlogiston theory to explain his experimental results. Swift's familiarity with such work indicates his awareness of recent advances in chemical theory. Experiments and demonstrations in static electricity, with the help of a Leiden Jar, were popular among London sophisticates in the 1770s.

19. The naturalist's edition of the Travels, from which I am citing, corrects Bartram's many inaccurate chronologies. See pp. 1, 336.

20. John Bartram to Peter Collinson, November 11, 1763, reproduced in William Darlington, Memorials of John Bartram and Humphry Marshall (New York: Hafner Publishing Company, 1967), 256.

21. Bartram, Travels, 406.

22. Dalrymple, Merchant of Manchac, 11.

23. Bartram, Travels, 272.

24. Ibid, 272. Bartram's estimation of distances here seems to be inflated. See p. 409. Dalrymple, Merchant of Manchac, 7. The Mississippi has changed course frequently in the past two centuries, so river distances between points must be judged by contemporaries' accounts. One detailed rendering of the area and distances was made between 1771 and 1776 by Caleb Carpenter, an early merchant of Natchez, which I quote at length so as to help orient the reader:

The river or rather creek Iberville ... forms the division of the English and Spanish settlements. It runs in to the Amit and is almost dry for several months in the year, being never navigable, even for canoes, except when the Mississippi is high. Here is the English town or rather intended town of Manshac, thirty-five leagues from New Orleans....

The first settlement from thence, two and a half leagues form the Iberville, is Mr. David Williams'; and from the lower line of the settlement to the boundary of Mr. Mitchell's tract (two and a half leagues) the lands are level, or rather low, but sufficiently dry and firm, and withal extremely fertile. In this space are six settlements. [Dunbar's plantation was probably one of these six plantations.]

From the lower line of Mr. Mitchell's tract to the upper boundary of Mr. Watts' plantation two miles, a level, beautiful, amazingly fertile plain, and about a mile in depth, runs parallel with the river,... This tract is capable of the highest degree of cultivation, either for health, wealth, or amusement;... From the upper line of Mr. Watts' settlement to Mr. Pousett's plantation, two leagues, a cypress swamp a quarter of a mile in depth, runs parallel with and very near to the river;...

From Mr. Pouset's to Mr. Cummings plantation opposite to the first island, -- three and a half leagues, -- the front lands are generally overflowed, and are called "the Devil's Swamp." Within this tract Governor Brown has located two thousand acres. Between Mr. Cumming's plantation and Brown's Cliffs, -- one league, -- where Governor Brown has located another

tract of seventeen thousand acres, there are about half a dozen pretty good settlements. At the upper part of these cliffs is Thompson's Creek, navigable for batteaux when the river is high, and for canoes when it is low, to that vast tract of country called "the Plains," [White Plains]... Between this creek and Mr. Willing's settlement, -- which is a very beautiful and fertile one, nearly opposite to another island in the river, -- a distance of about twelve leagues, there are half a dozen more good settlements.

From Mr. [James] Willing's plantation to the Natchez Fort, -- forty leagues, -- are only two settlements of any note on the banks of the river.

Carpenter, "The Mississippi River in the Olden Time," The Commercial Review (DeBow's Review v. III, (February 1847): 120-122.

25. Bartram, Travels, 272-273, 409.

26. Ibid, 273.

27. Ibid, 274. Bartram described a gentleman who helped nurse him back to health in almost identical terms. Carpenter claims that in 1775, the plantations of Point Coupée produced one fourth of all the indigo raised on the banks of the Mississippi. Carpenter, "The Mississippi River," 119.

28. Bartram, Travels, 407.

29. I will quote here from a microfilm copy of the original journal since Life contains some inaccuracies. I will also list the page numbers in Life where the quotations may be found. "Transactions on the Plantation [of] Wm. Dunbar begun Monday the 27th May 1776" Dunbar MSS, MDAH, B1, F6, [1]. The Journal's pages are not numbered. "Transactions," [1-2]; Life, 23.

30. In a series of letters to the firm of A & D Thompsons in Kingston, Jamaica, Dunbar outlines his involvement in the slave trade. See "Extracts," 9, 14, 16.

31. "Transactions," [2]; Life, 23.

32. Dunbar records his first temperature reading on June 15th, 1776. He also measures that same week the heat given off by a heap of Indigo lying on the ground: 115 degrees Fahrenheit. Life, 26. Plantation life presented many problems that Dunbar's education would not have addressed; problems in which common sense proved essential. All theory melted into praxis. In June, 1776, he wrote that the "Hogs

have got a practice of leaping the [fen]ce, ordered the Carpenter to make yokes for them." Life, 24.

33. "Transactions," 7; Life, 26.

34. "Notices," 8.

35. See Life, 26, 39, 42. Of these three acquaintances, only Pousset left any enduring record. Pousset had lived in West Florida for many years, having received prime lots in Mobile and Pensacola during the 1760s. He apparently spent most of his time, though, in Mobile, where he served as Custos Rotulorum, the principal justice of the peace who keeps the rolls and records of the sessions. When the province's first assembly convened on November 3, 1766, Pousset was elected Speaker of the Assembly. He evidently flourished, because on January 10, 1767, he was granted 1000 acres on the Mississippi River near New Richmond, adjacent to land owned by the wealthy Daniel Clark. He settled on this land, acquired a large plot near Natchez and received a town lot in Manchac. By 1772, Pousset was considered an influential planter. Clinton Howard, The British Development of West Florida, 1763-1769 (Berkeley: University of California Press, 1947), 42, 44, 60, 72, 80-81, 85, 106. Dalrymple, Merchant, 139. Dunbar spent considerable time at Pousset's residence. See Life, 24-27, 29, 30, 33-35, 38-39, 44, 48, 57, 61, 65, 66, 68.

36. "Transactions," 7; Life, 27. Stephen Watts and Dr. Samuel Flowers owned a plantation near Baton Rouge.

37. "Transactions," [7-8]; Life, 27.

38. "Transactions," [8]; Life, 27. The slave's suicide exhibited the man's grasp of the matter: protests of innocence, presented in a rather ingenious manner, had not worked; guiltless or not, certain death in an uncertain manner awaited him. This man slipped the noose by giving himself to the river; he controlled his fate. His victory recalls Amram's lament in Zora Neale Hurston's "Moses, Man of the Mountain," "you are up against a hard game when you got to die to beat it." See I Love Myself When I am Laughing... And Then Again When I am Looking Mean and Impressive, ed. Alice Walker (New York: The Feminist Press, 1979), 223. Dunbar's comment that his slave refused to look him in the face indicates that the deferential lowered gaze, a feature of the mask of obedience, was not expected by the Scotsman.

39. "Transactions," [9]; Life, 27. Although Dunbar does not reveal particulars of the rebellion, John Fitzpatrick, a merchant at Manchac, believed that the slaves had "Laid a

Skime to put there masters to Death." Dalrymple, Merchant of Manchac, 204. Ironically, as the insurrection unfolded, Thomas Jefferson was crafting the document which declared that "all men are created equal, .. are endowed by their Creator with certain unalienable Rights, .. Life, Liberty and the pursuit of Happiness."

40. "Transactions," [9-10]; Life, 28. "Anne Dunbar to William Dunbar, July 24, 1776." Kammerdeiner Collection. Dunbar's use of the word "accident" to describe this scenario suggests that he was increasingly recognizing the role of fate in his life. Fate, as described by Boccaccio, Machiavelli, and others had played a key role in Renaissance statecraft.

41. See Morrison's Playing in the Dark: Whiteness and the Literary Imagination (New York: Vintage Books, 1992), 39-51.

42. Using a variation of Lord Acton's corollary on the corrupting influence of power, Morrison claims that absolute authority over others becomes itself an irresistible force. Ironically then, Dunbar was commanded by events as he struggled to maintain command.

43. "Transactions," [9]; Life, 27-28. "Extracts," 16. Oddly, Dunbar apparently did not write his partner about this event until the following year, March 11, 1777. Dunbar does not specify whether or not an owner was entitled to compensation if a slave killed himself while under suspicion.

44. Appletons' Cyclopedia 1888, 396. Watts indicated his loyalty to England by giving an address before the APS in 1768 on the advantage of a perpetual union between Great Britain and her American Colonies. Dalrymple, Merchant of Manchac, 414.

45. Watts was seen in Manchac in December 1774 with 80 slaves, half for sale and the other half for Dunbar's and Flowers' plantation. Dalrymple, Merchant of Manchac, 181. "Despatch of David Guillermo (Williams)," Louisiana Historical Quarterly 14 (July 1931).

46. Eugene D. Genovese, Roll, Jordan, Roll: The World the Slaves Made (New York: Pantheon Books, 1974), 26.

47. See Garland Taylor, "Colonial Settlement and Early Revolutionary Activity in West Florida up to 1779," Mississippi Valley Historical Review 22 (September 1935). A number of George Rogers Clark's lieutenants settled in the Natchez District.

48. Dumas Malone, ed. Dictionary of American Biography 8, 50-51.

49. Ibid, 50.

50. Wells, "British Land Grants," 158.

51. Dunbar, Life, 60-61. Willing had received a British land grant of 1100 acres along the Mississippi River on August 4, 1772. Wells, "British Land Grants," 158. Willing evidently lived near Dunbar since his name, along with several others, appears on a New Orleans bill to Dunbar for sundries, dated July 19, 1774. "Bill to William Dunbar, July 19, 1774." Kammerdeiner Collection.

52. Wells, "British Land Grants," 158; Carpenter, "Mississippi River," 122.

53. Dalrymple, Merchant of Manchac, 125-26,

54. John Caughey, "Willing's Expedition Down the Mississippi," Louisiana Historical Quarterly, 15 (January 1932): 6. Dalrymple, Merchant of Manchac, 126.

55. Rowland, History of Mississippi, 270-71; James, Antebellum Natchez, 21-22; Claiborne, Mississippi, 17. Rowland, James, and Claiborne state that part of Willing's mission was to secure the Natchez district's neutrality. John Caughey asserts that Willing interpreted orders that he should seize British property on the river, including property which also lay along the banks. Caughey argues that Willing did not plunder property of Loyalists in the Natchez District who took the oath of loyalty, see pages 8 and 10. Loyalists below the district were not so fortunate.

56. Dunbar, Life, 60.

57. Ibid, 60-62. Ironically, Willing, sponsored by Robert Morris, pillaged a plantation co-owned by Morris's colleague, John Ross. In Claiborne's history, Hutchins, suffering with a severe contusion, sent his son to take the oath of neutrality under Willing but the latter still sent an armed party to sack Hutchins' estate and take Anthony Hutchins prisoner. See Claiborne, Mississippi, 118. Rowland, relying heavily on John Monette's account, which takes Willing's side, wrote that Hutchins refused to declare his neutrality and was thus arrested. Rowland, History of Mississippi, 271.

58. Carpenter, "The Mississippi River," 120-121.

59. Dunbar, Life, 62; Claiborne, Mississippi, 122. D. Clayton James believed that Willing's "inhumanity and lack of restraint" worked against the American cause at Natchez, particularly among the Loyalists, which seems sensible but James gives little evidence. He also pointed out that some Loyalists directed their anger at British officials in Pensacola for not offering suitable defense for the residents. This latter claim is readily believable when one reads Claiborne's account of the almost comic infighting -- comedic had it not been so deadly -- between the British Captain Jackson, commander of Fort Panmure at Natchez, and the settlers during this time. The parade of revolts and suppressions involving Jackson indicates that the settlers willingly defended themselves but they would not be led by those they deemed of dubious character. See Claiborne, Mississippi, 123-24. For another first-hand account of Willing's raid and the pageant at Panmure, see Phelps, Memoirs, 107-135.

60. Dunbar, Life, 64.

61. Ibid, 67.

62. Ibid, 65. White oak staves were selling for \$30 per thousand in October 1776, which meant that Dunbar received a premium price for his scantling. Dunbar apparently means here the Spanish silver dollar which was also called a piece of eight and was equal to eight reals.

63. Ibid, 66.

64. Ibid, 68. Dalrymple, Merchant of Manchac, 27.

65. Life, 69. Dalrymple, Merchant of Manchac, 28-29.

66. "Pollock," DAB, 51. Dalrymple, Merchant of Manchac, 29.

67. James, Antebellum Natchez, 24-25. Rowland History of Mississippi, 273-74.

68. Dunbar, Life, 69.

69. Ibid, 70.

70. "Extracts," 19.

71. Ibid, 20. Dunbar also was a Justice of the Peace for the Baton Rouge District. See "Trial of Molly Glass for Murder 1780," Louisiana Historical Quarterly 6 (October 1923): 614.

72. James, Antebellum Natchez, 26-27. Claiborne, Mississippi 127-28. The rebels first attempted to take the fort with a cannonade that featured a decrepit French piece which had been uncovered by a plow. The fort proved too strong and so the Loyalists changed tactics and convinced the Spanish that explosives lay buried under the fort. Rowland, History of Mississippi, 287-88. John Ellis, who commanded a company of Virginians under General Stanwix during the French-Indian War, also participated in this rebellion.

73. "Extracts," 18-19. Dunbar does not mention in his plantation journal this last seizure.

74. Rowland, History of Mississippi, 286.

75. Claiborne, Mississippi, 125-26.

76. Ibid, 129. The news reportedly came at White Cliffs, also called Ellis Cliffs in honor of John Ellis and family.

77. Ibid, 131-32.

78. Philip Pittman, The Present State of the European Settlements on the Mississippi (1770. Reprint. Gainesville, Fl.: University of Florida Press, 1973), 21. John Preston Moore describes the French rebellion in his Revolt in Louisiana: The Spanish Occupation, 1766-1770 (Baton Rouge: Louisiana State University Press, 1976), 208-209.

79. Claiborne Mississippi, 133-34. Hutchins (Odlin) Manuscript, n.p. This version of Hutchins' escape differs in many ways from the account in Anderson's, "The Narrative of John Hutchins," 8. Matthew Phelps, Memoirs, 18. Phelps' biased account of the events that followed the Natchez revolt includes the bounty on Hutchins' scalp.

80. This list is published in Murtrie June Clark's Loyalists in the Southern Campaign of the Revolutionary War, v. 1 (Baltimore: Genealogical Publications Company, Inc., 1981), 457.

81. "Notices," [6].

82. See Dunbar, Life, 64.

83. Clark, "New Orleans," 182-83.

84. The Scottish influence on American Science awaits a full-length study. Jefferson learned his science at The College of William and Mary from William Small, a Scotsman, educated at Glasgow, who was friends with the famous

Edinburgh natural philosopher, Joseph Black. Bedini, Jefferson, 25-26. When Small left Virginia in 1764, he helped form the Lunar Society in Birmingham, England. Hindle, Pursuit, 91-92. Black taught Anthony Lee while the latter was a student at Edinburgh. Lee, Arthur Lee, 13. Black also influenced Thomas Reid, when the latter joined Black at the University of Glasgow in 1764. Hamilton, Works of Thomas Reid, 10. Scottish universities and the tendency of Scottish teachers and physicians to emigrate to America heavily influenced the teachers and curriculum at Harvard. William Smith, provost of the College of Philadelphia and a former student at the University of Aberdeen, began a program at Philadelphia that required students to spend almost 40 percent of their classroom time on science. Scottish universities, as a rule, cultivated science more assiduously than England's Anglican universities. See Hindle, Pursuit of Science, 38, 86, 90. Brooks Hindle concluded that teachers in colonial America with "Scottish educations and those who had studied at Harvard were distinctly superior in their accomplishments" compared to other American teachers, see page 101. But accomplishments were rare in American natural philosophy and the bulk of progress was in the form of the dissemination of knowledge.

85. "Notices," 9-[10].

86. Hindle, Pursuit, 248-49, 308.

87. Ibid, 258-59.

88. Quoted in *ibid*, 250.

CHAPTER FOUR
TO RENDER A RESIDENCE AGREEABLE: THE SPANISH PERIOD

Bad peace or good peace never fails to prove herself the Faithful nurse of Science. Sir Joseph Banks, President of the Royal Society of London.¹

Spanish control of West Florida accompanied a stability which was essential for economic gains. But even with the threat of invasion removed, economic, social, and political security still eluded Dunbar. Tobacco and indigo, subject to disease, quota purchases, and soil exhaustion, had proven to be somewhat unreliable sources of income. Internal divisions arising from Patriot and Loyalist antagonism also continued to plague the area and it was during the Spanish Period that nascent political parties materialized. Most importantly, the final years of Spanish rule featured a fractious transition. Cotton dramatically changed the economic lay of the land and the surveyor Andrew Ellicott, representing the United States, swept into the Natchez District and polarized political opponents. All these distractions diluted Dunbar's energies and kept him from his pursuit of science.

In 1783, Great Britain signed a treaty formalizing its losses in North America. British cessions to the United

States included lands which stretched westward to the Mississippi River and southward to the 31st parallel. But the British, with their ever careful attention to confusing their enemies, also signed a treaty with Spain, ceding to the latter all of East and West Florida--with a northern boundary at latitude 32° 28'. The United States and Spain thus inherited a border dispute which created an uneasy peace for the next sixteen years. The boundary would profoundly influence Dunbar and others' actions during the Spanish period since the area in dispute included a large part of the Natchez District, one of the more fertile areas in the continent.² But in spite of the tension between the two countries, Spain provided a stable and competent government--something which Dunbar heartily desired. The continual raids, which had wasted his precious time, ended and he busied himself in securing his dreams of wealth.

Although Spain had centuries of experience in colonial rule, not all was well in the land. Spanish soldiers manned the local outposts, but the Anglo-American population still yearned for British or United States control. These dreams incited internal divisions and undermined societal stability. Although many settlers took the oath of allegiance to the crown of Spain, few felt themselves bound to King Carlos and group identity remained fractured. Residents questioned each other's loyalties and inhabitants

devoted enormous energy to the defense of personal integrity.

In spite of a reputation of catholic ruthlessness, Spain ruled West Florida neither harshly nor cruelly. His Catholic Majesty not only offered amnesties to the leaders of the Natchez revolt, British subjects were given two years to dispose of their property or convert it to Spanish land grants after taking the oath of allegiance. Spain allowed English to be used in the courts, deferred to English-ruling customs, and although stopping short of allowing open Protestant worship, the new Catholic masters broke with tradition by not requiring her new residents to convert to Catholicism and even permitted private Protestant worship in the home. The former British subjects could now pursue their economic interests with barely a thought of a Spanish allegiance.¹

Such leniency allowed Loyalists in the district to view the future optimistically. Dunbar wrote his friend Alexander Ross in December 1782, that "British property is here in the utmost security. An English man may come here and recover his debts and obtain as much justice as in Westminster Hall."² Economic conditions had improved measurably the year before--flour dropped from its wartime selling price of 50 down to 8 dollars a barrel. But the year after his letter to Ross, Dunbar's hopes had dimmed.

The future of the Baton Rouge district, with its soil's decreasing fertility, seemed stark and Dunbar, weary from turmoil, spoke of leaving his land behind.'

Spanish moderation arose from necessity because of the poor prospects for settling the land with Spaniards. When writing John Ross in 1781 to discuss the possibility of selling the Baton Rouge land, Dunbar reported that, "We cannot expect that a Spanish adventurer will purchase our Settlement. There are here no Spanish planters at all." West Florida's governors, therefore, were forced to rely on men of diverse national allegiances to assist in administering the territory. Spanish governors assembled committees of upstanding citizens--several of whom would contribute to the intellectual life of the area--to study problems and to suggest solutions.'

One such committee member, Stephen Minor, originally from Philadelphia, engendered such trust that he became the last Spanish representative in the Natchez District. Dunbar, too, behaved agreeably in Spanish eyes and carried on an extended and cordial friendship with Governor Manuel Gayoso de Lemos. In a summation of his views on Spanish rule Dunbar declared, "The prudent and circumspect had nothing to fear from the government, it depended upon themselves to render a residence in the country agreeable."

In spite of its indulgent policies, Spain could not depend on West Floridians' fidelity: Loyalists maintained ties to Great Britain, United States patriots wanted their country to take over the land, and the French Creoles resented Spanish control and remembered the country's ruthless suppression of an uprising in New Orleans twenty years earlier.' Madrid initially prevented unrest by paying premium prices for planters' tobacco and by appointing, if somewhat sporadically, competent administrators like Gayoso, whose charm and gentility pleased the Natchez nabobs, but these measures did not guarantee the loyalty of a captured population.¹⁰

Although everyone understood that Spain governed West Florida, residents believed this to be a temporary condition. They continued to look north for the armies of either Great Britain or the United States to march in and assume control. But the earliest challenge to Spanish rule came from the east. On February 7, 1785, Georgia's legislature passed an act to co-opt Spanish lands.¹¹ The proposed county of Bourbon, Georgia stretched from the mouth of the Yazoo River, down the Mississippi River to the 31st degree of north latitude, east through relinquished Indian territory, and back up to the Yazoo River, and included all of the Natchez District.¹²

Among those individuals in whom Georgia invested authority to administer her oath of allegiance was Thomas

Green, his son, Thomas Marston Green, and his son-in-law, Cato West. Other Georgian loyalists consisted of Tacitus Gilliard, Nicholas Long, William Davenport, Sutton Banks, Nathaniel Christmas, Richard Ellis, and Adam Bingaman. These men formed the nucleus of a group of hot-headed Republicans who would later challenge the Whig majority in the Natchez area. Most of these men would hold important positions in the Mississippi Territorial government and some of them would evince interest in scientific matters. Their arrival marked the genesis of heated political divisiveness in the Natchez District.¹³

The numerous Patriots who settled in the district after 1782 believed that this section of West Florida would soon become part of the United States. Many of them possessed social position and wealth and some of their members, like the elder Thomas Green, openly opposed Spanish sovereignty.¹⁴

Colonel Thomas Green, who had served under George Washington, had long been interested in the district, having acquired 500 acres of land below Lac de la Croix as early as 1768.¹⁵ Incensed by the presence of Loyalists who had fled to West Florida during the 1770s, Green organized opposition against those who still favored British rule.¹⁶

The Green/West clan had migrated from Virginia. After moving to Georgia, the group shared General George Rogers Clark's vision of expanding the Virginian empire and in 1783

they marched for the Kentucky settlements to assist Clark. For some reason, they changed their original goal and detoured to West Florida where they secured Spanish land in the Natchez District.¹⁷

After Georgia passed its Bourbon County Act, Green, at the Georgia legislature's behest, reportedly marched up to Spanish authorities in Natchez and commanded they surrender the District to him. Rather than do this, the Spaniards arrested Green, shipped him downriver to New Orleans, and confiscated his property. Even so, Green eventually benefitted from Spanish tolerance and upon his release, they allowed him to place his estate in the care of his sons and his son-in-law.¹⁸ Although Georgia continued to contest the ownership of the Natchez District, the state's claim slipped into memory when the state legislature in 1802 ceded all lands west of the Chattahoochee River to the United States.¹⁹

Dunbar quietly accepted Catholic rule. He could speak both French and Spanish, and was at all times "sufficiently prudent and circumspect to [avoid] giving the least umbrage to government," but Dunbar still expressed deep dissatisfaction with his current station: "when I look around me I cannot but be sensible of the inglorious purposes to which I have applied the most precious of my days..." His lands now rested secure with Spain, but the fields neared exhaustion and the location of the acres no

longer seemed desirable: "The soil of this settlement, which we now call Batton Rouge," he informed John Ross, "is very [unprofitable]..." "I am sorry to tell you," he continued, "that our plantation falls considerably without the American line, in consequence of which it may not perhaps be worth a pinch of Snuff as a Saleable commodity."²⁰

Although he was discouraged and had endured difficult moments, Dunbar's fortune compared favorably to that of other residents in the Baton Rouge District. Of the 16 residences appearing in the census of 1782, only David Williams owned as many slaves, 26, the same number as Dunbar, followed by Garret Rapalje with 17, and Francis Poussett with 14. The remaining 12 households recorded 6 or fewer slaves, with 8 of these recording none.²¹ The census also lists Dunbar as the only grower of indigo, of which he produced around 100 barrels per year.²² But the land had passed its promise, and the setbacks of war prompted him to seek better land.

Dunbar looked northward, to Natchez, where, he believed, "one negro ... in the cultivation of the soil will do as much as 5 here..." He confessed to Ross in August 1783, "I have often been tempted to move." Furthermore, he argued, "As the Natchez is considerably higher than Lat: 31 we believe here it must soon become a settlement of great consequence.... Upon the whole then I would propose

instantly to remove ([the] planting establishment) to the Natchez."²³

However, for some reason, Dunbar demurred. The 1786 census shows him still residing on his Baton Rouge plantation, along with six other Anglos: two men from the ages of 15 to 50, three girls under 15 years old, and two women from 15 to 50.²⁴ One of the women was his wife, sixteen-year-old Dinah Clark, whom he had married in 1785. Her family had come from Whitehaven, England, located on the Irish Sea, in the Lake District, but little else is known of her or her family's reasons for coming to West Florida. Although separated in age by some fifteen years, Dinah Clark and William Dunbar exhibited striking affection for each other. His seniority did not prevent her from chiding him about his long absences from the plantation and their surviving letters, spanning the years 1789 to 1798, demonstrate teasing and respect. By April 1786 they had their first daughter, Anne, named for Dunbar's mother.²⁵

Dunbar's marriage to Dinah meant that he could leave the plantation in trusted hands while he was away on business. Although he had always travelled short distances for brief periods, he now began to absent himself from the Baton Rouge settlement for weeks at a time.²⁶

Always open to opportunities, Dunbar held many interests beyond farming. He worked numerous business accounts in New Orleans, of an unspecified nature, and

helped with the governance of his district. With an eye on the future, he asked John Ross to help him secure the appointment of Surveyor General for the day when the Natchez District passed into American proprietorship, claiming "I think it would not a little contribute to the advancement of our original plans." Wisely not waiting for the two countries to settle the issue over the disputed land, Dunbar began serving Spain as Assistant Surveyor of the Baton Rouge District, along with his friend Don Carlos Trudeau. The job paid poorly and he complained to Gayoso of having to subsidize government surveys with his own resources, but he still performed the surveys, and in the process learned enormous details about the region, particularly the Natchez District."

We do not have Ross's reply to Dunbar's maneuvering for the Natchez surveying position and as long as Spain ruled the area the request remained untenable. But Dunbar pushed ahead in acquiring land in Natchez. A missive to Lewis Alston in which Dunbar promises to come up to the Natchez and survey some land indicates that Dunbar still resided in Baton Rouge in May 1789. He had, however, already purchased and cleared land in Natchez, since he reported on a crop of his, either tobacco or indigo, growing at the Natchez in August 1789. For the rest of the century, he lingered ever longer at his Natchez plantation as he cast for his fortune in the area's deep loess."

By October of that year, Dinah was imploring William, who was in Natchez, to come home. "Do my Dear try to come down as soon as you can; that I may have your company for some time before you leave me again to go to town." She followed this request for attention with a sportive complaint: "a pretty husband ... that does not stay with his wife above 2 months in the year is it possible that he can be such a [maven?] & faithful at the same time."²⁰ Dinah's laments were justified since Dunbar typically travelled from Natchez to New Orleans with only a short visit with his family in Baton Rouge.²¹

Dinah's management of the Baton Rouge farm enabled William to make these extended trips. Their hard work finally allowed them to initiate their long awaited move to Natchez. In April, 1790 William wrote Dinah from New Orleans and closed it with the lines, "The bearer of this letter is the man who undertakes to build our house, we shall have it carried on with all the vigour imaginable; we will endeavour to move in the fall if we can altogether. My purpose is my love to go up as soon as I can to Natches to set the surveying business agoing before the hot weather sets in to get the house building."²²

The planned move was ill timed. Always nervous about American encroachment, Spain tried to lure Kentucky from the Union by offering premium prices for Kentucky tobacco. This action glutted the tobacco market, strained Spanish

finances, and prodded Spanish officials in 1790 to slash the annual procurement of Louisiana tobacco by an incredible 98 percent." By May of that year, after repeated attempts to push his tobacco through inspection in New Orleans, even enlisting "the help of Gov. Gayoso who stands always my firm friend," William informed Dinah "The Inspector has now finally rejected our baton rouge carrots [tobacco] ... the truth is, they do not want carrots at all."³

The new Spanish policy sank the area into depression, setting the stage for bitter merchant-creditor/planter-debtor clashes.⁴ Many planters faced economic disaster but Dunbar's diverse activities and his indigo crops at Baton Rouge and Natchez helped him survive the downturn. Like a good Scotsman, he informed Dinah, "I mean to buy as little as possible until we are extricated from our Difficulties.... We shall get over all our difficulties by the help of a little economy."⁵ So, although Dinah, like Dunbar's slaves, freed William to seek other interests, circumstances once again dictated that he pour his energy into fiscal matters, leaving his desire to explore nature's secrets to linger out of reach.⁶

Good credit and hard work meant that by October 1791 the Natchez house neared completion. William confessed to Dinah at this time that he was at a "Good deal of loss for house & kitchen furniture." By June 1792, Dinah and their

two daughters were at The Forest, the apt name given their home." Located some nine miles south of Natchez, in the Second Creek District, The Forest lacked certain comforts and Dinah complained of the dark woods, the thick canebrakes, and the isolation. William, who was again back in New Orleans, wrote to her with his usual optimism. "You say you have not had much company; no matter for that, we shall have the fewer visits to return." He followed this unhelpful comment with a more indulgent offering: "Do not think your woods gloomy my dove, when I come up my Dear, I will render them delightful to you by carving out handsome walks for you."³

Although long planned, the Natchez move presented physical and social challenges. In 1792, insects decimated the District's indigo plants, and planters grasped for a new cash crop. Many growers turned to cotton but the intractable seeds and debris in the fine lint frustrated attempts to clean the cotton--roller gins processed a mere 75 pounds of cotton per day." Combined with this new economic threat was the Dunbars' loss of society. They had left behind the social bonds forged in Baton Rouge, while the capital, New Orleans, lay hundreds of miles down river. Furthermore, the Choctaw Nation, the most powerful of the southern tribes, bordered their district. While the lack of society at The Forest bothered Dinah, William was less affected since his official duties and business interests

frequently took him to Natchez and New Orleans. He was comfortable in both towns and both places influenced him.

Natchez in 1790, as remembered by Samuel Forman, "was then a small place, with houses generally of a mean structure, built mostly on the low bank of the river, and on the hillside."⁴⁰ The District, though, featured powerful, contentious, and intellectually rigorous families, such as the Ellises, the Percys, the Hutchins, and the Greens. As mentioned earlier, numerous Patriots, believing that the United States would assume control of the area above the 31st parallel, had settled in the area even though the District still belonged to Spain. Since Spain controlled the land, Dunbar continued to serve the spanish crown. In addition to his surveying duties, he sat, along with Joseph Vidal, Joseph Bernard and Bernard Lintot, on the Cabildo or council which met semiweekly in Natchez to administer justice in minor cases.⁴¹

New Orleans, on the other hand, presented Dunbar with a vastly different environment. The city featured a highly diverse population with strong cultural infusions coming from the French, Spanish, Creoles, and free persons of color. Color boundaries blurred in New Orleans and among the town elite was a free woman of color who was also Dunbar's friend.⁴²

In New Orleans one spring, William wrote Dinah to inform her "this is the time for Pink root; if you cou'd

send a parcell down for Madam Laveau I shou'd be glad, you know I told you that I had promised her an annual provision, & she has put me in mind of it."⁴³ "Madam Laveau" was a voodoo queen, famous even today in New Orleans as folklore.⁴⁴

The name Laveau, including its variant spellings, was common in New Orleans during this period. In fact, a long succession of Marie Laveaus arose in New Orleans, each one allegedly teaching her daughter the secrets of a religion commonly called Hoodoo.⁴⁵

The most famous of these Marie Laveaus lived roughly from 1783 to 1881. Her father was Charles Laveaux, a free man of color, who was both well educated and prosperous. Considering his lofty circumstances, along with other documents, Charles's father was probably Charles Laveau Trudeau, an influential politician in New Orleans and Dunbar's fellow surveyor for Spanish West Florida. Dunbar frequently worked with Trudeau, and his letter to Dinah suggests that Madam Laveau, who was also named Marie Laveau, was his friend's companion. If this connection is accurate and Dunbar's Madam Laveau was the paternal grandmother of the Voodoo Queen of New Orleans, this "root woman" may have taught her granddaughter about native plants.

While little evidence has been found concerning Dunbar's association with Madam Laveau, his request to his wife indicates not just his acceptance of this free woman of

color, it also reveals his openness to native medicines, emphasizing the porosity that existed between rational science and folk medicine.

Pink root was a New World plant given the name Spigelia marilandica, by Carolus Linnaeus in his System of Vegetables (1783). Also known as American wormroot, Carolina pink, Carolina pinkroot, Indian pink, Maryland pinkroot, perennial wormgrass, snakeroot, star bloom, unstilla, and wormgrass, Spigelia marilandica flourishes in rich soils on the borders of woods and flowers with brilliant red and yellow petals from May to July.⁴⁶ Used by Amerindians as an anthelmintic--a dewormer--parts of pink root are toxic and produce effects similar to those elicited by strychnine.⁴⁷ The plant can induce a violent narcotic effect, including dimness of sight, giddiness, dilated pupils, spasmodic motions of the eyes, and convulsions. In other words, a plant well suited for a voodoo ceremony.⁴⁸

That a child of the Enlightenment, a devotee of rational inquiry, would associate with voodoo queens seems incongruous. But Dunbar--and few of his contemporaries--would not have recognized modern distinctions between legitimate and spurious medical practices. He had even received encouragement in using folk medicine while in his native Scotland. In Elgin, Dunbar had received a recipe for "D. Houghtons Elixir" from John Jeans which contained Virginian Snake Root and which when mixed with other

ingredients and combined in a "Scots pint of white port or cherry Wine, brandy, or best Aquavitae [gin]," would alleviate "windy disorders in the S[tomac]h & Belly."⁴

Although Dunbar had enjoyed more security under Spanish rule than at any time since coming to North America, a significant social shift appeared on the horizon. Political alignments in Europe, forged in the heat of the French Revolution, prompted Spain to reassess its position in the Floridas. In 1794, John Jay negotiated a treaty with Britain which infuriated the Jeffersonians. Jay's Treaty, however, goaded Spain into trying to prevent an Anglo-United States alliance. Subsequently, in 1795, Thomas Pinckney, American minister to the court of Madrid, concluded a treaty with the Spanish minister, Manuel Godoy, in which Spain ceded to the United States free navigation of the Mississippi River and the disputed land above the 31st parallel--that is, Spain finally acknowledged the Treaty of Paris of 1783. The Natchez District once again belonged to the Americans--now in Spanish and English--but only on paper. The timing of the treaty was enormously important to the United States due in large part to a device invented by Eli Whitney the year before.⁵

In September of 1795, Dunbar wrote a friend to explain a recent absence: "I was from home inspecting a cotton gin when your last letters arrived." Dunbar was almost

certainly examining a gin copied from Whitney's prototype. Life in the Natchez District was about to change beyond measure. Two years later, Dunbar wrote his partner Ross that "Cotton has become the universal crop of the Country Last year half my crop was cotton ... the present year I expect we shall gather at least 20,000 [lbs.?] clean cotton." The District's total cotton output in 1794 had been 36,351 pounds--by 1798, production surpassed 1,200,000 pounds. With an average price of 39 cents/pound for the long-staple Creole variety, planter fortunes escalated rapidly. Natchez underwent an economic and intellectual revolution."

The district's increasing value refocused attention on the area. Georgia still coveted Natchez and the Pinckney-Godoy Treaty had induced the corrupt and persistent Georgia legislature to pass the Yazoo Land Act in which they allotted most of the Natchez District to the Georgia-Mississippi Land Company." Although an angry public forced the law's overturn in 1796, tracts of land sold during its short life produced a morass because Georgian, Federal, Spanish, and British property lines were found to be thoroughly at odds."

Numerous planters owned extensive Spanish land grants, most of which had been converted from British grants. The owners fretted that the United States would complicate land matters at best or redistribute the land at worst."

Timing was again significant. The desperate years of the tobacco and indigo crises were now dimmed by the white-hot profits promised by cotton. Dunbar summed up the situation succinctly: "There is no doubt that the foundation of a large fortune may be laid now in this country."⁵⁵

But cotton planters grew increasingly worried as the United States prepared to take possession. Planters, many of them still in debt, feared losing their land. Spain had usually eased planter troubles by capping interest rates or forgiving obligations. The large-scale land holders feared that the United States might act unfairly and this concern seemed justified when Andrew Ellicott arrived.

Born to Quaker parents in Bucks County, Pennsylvania in 1754, Ellicott displayed a talent for mechanics and mathematics. He studied under the eminent Philadelphia mathematician, Robert Patterson, and tinkered with clocks and other devices. Ellicott's temperament was incompatible with Quaker views, and he distanced himself from the Society of Friends by serving in the Maryland militia during the War for Independence, gaining the rank of major.⁵⁶ Ellicott consistently fell in and out of favor with government officials, but his sterling reputation as a surveyor won him the commission to survey the new nation's capital, Washington City. After the work was completed, he was assigned to mark the boundary between the United States and Spain: the 31st parallel.⁵⁷

Ellicott left Philadelphia for Natchez on September 16, 1796.³⁸ In his journal, he described his trek to Pittsburgh and the descent down the Ohio and Mississippi Rivers. He commented frequently on the "miserable" towns he encountered and the numerous shoals and logs that hindered his party's descent down the Ohio.³⁹ The weather held his special interest as he recorded temperature extremes for each day. He even conducted an experiment with hoar frost to disprove the notion that such frost can form 6 to 7 degrees above 32 degrees fahrenheit. On November 25, his party stopped in Cincinnati, capital of the Northwest Territory, where they "were politely treated by Mr. Winthrop Sargent, secretary of the government," who would later be appointed the first governor of Territorial Mississippi.⁴⁰

An important aspect of Ellicott's journey included the mapping of the Mississippi River, since Spain had granted the United States full navigational rights on the river. Latitudinal coordinates created few problems since Ellicott could shoot the sun at noon, but longitude presented intractable difficulties while on the river. Ellicott could not establish meridians with any degree of certainty and lamented that a "continued, and correct survey of this river will scarcely ever be obtained on account of the swamps, lagoons, thickets, and cane brakes on its banks." These impediments, along with quicksand and sharp precipices, which precluded the establishment of observation posts on

the banks, worked against sure measurements.⁶¹ Even if coordinates could be accurately ascertained, he observed, the river's frequent course changes would continuously render data obsolete. Except at the mouth of the Ohio and at Natchez, the former having been established to Ellicott's satisfaction by Ellicott's friend, Don Jon Joaquin de Ferrer, the river's precise location west of Greenwich, remained uncertain.⁶²

Throughout much of the eighteenth century, the techniques used for regional maps and topographical studies consisted primarily of surveyors pushing a holometer or wheel perambulator to measure distances--a method fraught with inaccuracy when one delimited rough terrain. When escarpments or swamps proved too difficult to run the holometer, surveyors would frequently scale a tree or other elevated point, eye a landmark, and make a guess.⁶³

But boundary marking and notations on natural phenomena did not totally occupy Ellicott during his journey down river. At the confluence of the Ohio and Mississippi, where the party had laid up due to great ice floes gliding into each other with rumbling impacts, Ellicott met Philip Nolan, adventurer and son-in-law to the Natchez planter, Bernard Lintot. Nolan, "well known for his athletic exertions and dexterity in taking wild horses" answered Ellicott's questions on Natchez' principal inhabitants, thus setting a

context which would inform Ellicott's maneuverings in Natchez."

As he progressed, down river, Ellicott became increasingly convinced that every Spanish fort commander he encountered sought to delay him. When he reached Walnut Hills (present-day Vicksburg), whose commander professed complete ignorance of the Pinckney-Godoy Treaty, Ellicott observed, "At this post my suspicions relative to delays being in contemplation by the officers of his Catholic Majesty, to prevent the treaty going immediately into effect, were nearly confirmed." Ellicott thought the commander's innocence of the treaty disingenuous, but he still relished showing the Spaniard an authenticated copy of the treaty written in Spanish." Ellicott scoffed at the commander's suggestion that he remain at Walnut Hills until the river rose high enough to allow the Spanish evacuation of Fort Panmure in Natchez. Frustrated by the delays he had already encountered, he informed the commander that the Mississippi was always at a sufficient depth to enable transport and departed." As soon as he left Walnut Hills, a message from Governor Gayoso at Natchez, reached him by canoe. Gayoso requested that Ellicott leave his troops at Bayou Pierre, directly above Natchez, so as to "prevent misunderstanding." Ellicott considered the request unreasonable, but he acquiesced on the grounds that harmony be preserved between the United States and Spain."

When Ellicott reached Bayou Pierre, he sought his long-time friend, Colonel Peter Bryan Bruin: "From him," Ellicott wrote, "I expected to obtain much valuable information respecting the principal characters in that country, and the line of conduct it would be proper to pursue, in the present unfavourable appearance of the important business...."

On February 24, 1797, Ellicott boldly entered the hive of Natchez politics.⁶ Upon setting foot on shore, he immediately sent a note to Gayoso asking when it would be convenient to present his credentials to the governor. The ever-courteous Gayoso replied, "I learn with pleasure your arrival at this post, in the character of commissioner in behalf of the United States, to ascertain the boundaries between the Territory of his most Catholic Majesty, and that of the said United States."⁷ Ellicott, who had encamped within 300 paces of the fort, was perplexed by this note and sent another inquiry. After further delay, the two men finally met the next day. Ellicott pressed Gayoso for a date to begin the line but the governor protested that Ellicott's arrival had taken him by surprise and that he was unprepared to give a date. Gayoso continued to dissemble but did agree to let the survey commence on March 19.⁸

As Ellicott had suspected, Spain had reconsidered her generosity to the Americans following ratification of Pinckney's Treaty. In an impressive display of vacillation,

Manuel de Godoy issued orders commanding Governor Francis Lewis Hector, Baron de Carondelet in New Orleans, to vacate Natchez immediately, only to reverse himself shortly after. In early 1797, Godoy issued new orders that Natchez be abandoned and again sent a countermand on its heels, insisting that Natchez be fortified. The last directive reached Gayoso just days after Ellicott's appearance."³

A superb politician, Gayoso followed his minister's wishes and proceeded to defer, in the most polite language, all action related to the boundary. Ellicott, who was camped on a hill at the upper end of town, besieged Gayoso with messages that grew from the polite to the accusatory in a curious ballet of mounting indignation. Finally, on May 16, 1797, with no promise in sight of beginning the survey and rumors of Spanish reinforcements on the way, Ellicott fired off a letter to the governor claiming that Gayoso was engaging in "specious pretence" and he summarily suspended further correspondence. Serving as intermediaries between these two officials were Nolan, Stephen Minor, and Dunbar. Dunbar's position required great tact. Although he worked as a servant to the crown, he soon hoped to be reborn as a republican."⁴

He also had to take care of his financial situation. As Assistant Surveyor of the district, Dunbar had invested much of his time laying out lots in Natchez, copying charts, recording elevations, and various other duties."⁴ His

protests over the lack of remuneration for his labors resulted in Gayoso promising him land." But by April 4, 1797, Ellicott was in town and Dunbar still did not have his land. His opportunity for gaining any property from Spain continued to narrow. Slyly, he petitioned Gayoso for a specific plot slightly over 25 acres, which he had surveyed himself and which bordered the fort and the city. Gayoso granted the petition on April 19, 1797."

By May 24, Ellicott's presence and an increase in Spanish forces filled the air with tension. Baron Carondelet tried to defuse the situation by issuing a proclamation in which he attributed the military build up to "the imperious necessity of securing Lower Louisiana from the hostilities of the English." Carondelet also tried to align the large property owners with Spanish interests--a tactic used by Gayoso in a declaration issued on March 29--by deriding the "evil disposed persons, who have nothing to lose, have been endeavoring to draw the inhabitants of Natchez into improper measures, whose disagreeable consequences, would only fall on those possessed of property." Naturally, the proclamation lacked the paramount reason for Carondelet's actions: the creation of a buffer, which extended from the mouth of the Ohio River to Natchez, so as to thwart British encroachment."

Ellicott thought Carondelet's tactic foolish. A "large class of the inhabitants, who had formerly been British

subjects," he wrote in his journal, "and to which government many of them were still attached; both from principle and habit, and no intelligence could have been so pleasing to them as that of the British preparing to repossess that country."⁷³ Many of these former British citizens--like Dunbar, Hutchins, and Minor--owned large plantations and had depended upon the Spanish to ease credit restrictions when disease and economic policy had threatened their economic survival. While Dunbar and Minor had easily adjusted to Spanish rule, Hutchins had not managed the transition so easily. Hutchins disliked the Spanish, or, to be more precise, he simply would not subordinate himself to anyone for very long; through either force of will or force of arms, he would oppose those whose policies he resented.

Ellicott's presence reminded everyone that internal affairs in Natchez were no longer a simple quarrel between Spain and Britain. His impatience and brusque treatment of Gayoso, whose courtesy and aristocratic bearing had endeared him to many planters, exacerbated the situation. Ellicott further alienated himself from much of the planter class, by forging close ties with Natchez professionals, merchants, and creditors, many of whom held notes from planters. Likewise, his ill-defined role as the United States' official representative in the area, the unforeseen difficulties with Spain's vacillation, and Ellicott's reported dislike of slavery escalated the dangers of

political factionalism.⁴⁰ Tangled loyalties arose in a peculiar reversal of national politics. Large landowners, like Hutchins, aligned themselves against the Federalists, whereas landowners in the upper United States remained loyal to the Federalists' cause.⁴¹

Ellicott could have been forgiven for many lapses but his distaste of slavery was an offense not to be absolved. In an un-Quaker-like stance, Ellicott believed slavery to be more politically than morally injurious; masters were not comforted by this distinction. He asserted that slaves would neither cultivate the soil as well as freemen nor add to the strength of the community. But he was above all a pragmatist, and his belief that slavery would harm the Republic did not blind him to the fact that slavery in the Old Southwest constituted a way of life that was unlikely to change: "Although domestic slavery is extremely disagreeable to the inhabitants of the eastern states," he wrote, "it will nevertheless be expedient to tolerate it in the district of Natchez, where that species of property is very common, .. otherwise emigrants possessed of that kind of property, would be induced to settle in the Spanish territory."⁴²

The tinder in the area was finally sparked by Baptist fire. In June, Barton Hannon, an itinerant Baptist shoemaker, (Ellicott calls him Hannah and thought him a minister), arrived. Hannon approached Ellicott to gain

permission to preach in the surveyor's camp. Although Ellicott viewed his camp as representing the United States in an area which now belonged to the United States, he knew of Spain's prohibition against non-Catholic public worship. In a diplomatic move, he spoke to Gayoso about the matter and, surprisingly, the governor assented to the sermon. A large crowd, consisting of a "tolerably respectable audience," gathered to hear Hannon. "The preacher," Ellicott observed, "being a weak man, was extremely puffed up with the attention he received on that occasion, which arose more from the novelty of the case, than his own merit and talents."

Less than a week later, as Ellicott dryly reported, Hannon, "imboldened by having the permission to speak publicly, .. which was a little heightened by liquor, entered into a religious controversy in a disorderly part of the town, generally inhabited at that time by Irish Roman Catholics." The Irish were not receptive to Hannon's invective and "took offence at the manner in which he treated the tenets of their church, and in revenge gave him a beating." Hannon made matters worst by calling upon Gayoso and swearing in Baptist righteousness that he would see justice done if he had to do it himself. "The Governor," Ellicott stated, "with more patience and temper than ordinary, desired him [Hannon] to reflect a few minutes, and then repeat his request, which he did in the

same words, accompanied with the same threat. Upon which the Governor immediately ordered him to be committed to the prison, which was within the fort, and his legs to be placed in the stocks." Imprisoning the Baptist precipitated a public uprising on the morning of June 10th which nearly cost the Governor his life."

The lines of authority had been blurred by Ellicott's arrival and the governor's weakened position provided an opportunity for those who felt they had been insulted, wronged, or not given enough land, to use the occasion of the drunken Baptist's arrest to stage a coup de main." Merchants and creditors, who had suffered through various Spanish governors' readiness to suspend debtor payments and cap interest rates, Colonel Hutchins and the Green clan, and landless refugees intent on plunder, happily agitated against Spanish authority."

Most planters in the area, however, viewed their relationship to Spain in a different light. Spain's dramatic curtailing of tobacco purchases had distressed many planters and they found little use for a government soon to become irrelevant. Even so, planters knew that their Spanish land grants were secure with Spain. The uncertain land policies of the United States troubled them and the fact that Ellicott had allied himself with the same creditors who called for their land deepened planter anxiety."

On Friday, June 16th, leaders of the coup, with Ellicott encouraging them, agreed to meet the following Tuesday to organize a representative body.⁸⁸ Having taken refuge in the fort, Gayoso now fully understood the opposition's resolve. He was reduced to creeping through the woods to meet with Ellicott and plead that the surveyor restore order. Ellicott was amenable to the request and noted with surprise that even Anthony Hutchins, who before, in his usual desire for direct action, had agitated for an attack on the fort, took "an active, useful and decided part," in the opposition meeting. Those present elected Hutchins, Bernard Lintot, Isaac Gaillard, William Ratliff, Cato West, Joseph Bernard, Gabriel Benoist, Ellicott, and Lieutenant Piercy Smith Pope, commander of the American forces in the area, to represent them. On June 21st, the committee, recognized by Gayoso, met in a building provided by Dunbar and proceeded to draft several propositions: they clarified their status as United States citizens; they prohibited Spain from pursuing revenge against them; and they gave their promise to pursue peace. Gayoso and Carondolet agreed to the propositions and the committee disbanded in triumph.⁸⁹

Yet the landless opportunists who had opposed Gayoso remained dissatisfied and plotted to murder and rob a number of wealthy citizens in the area. Their plan was discovered and its heinous nature united Ellicott with many of the

planters. The citizens deemed another committee necessary to act until the Spanish left and the Americans assumed power. In the beginning of July, nine men, "almost all strong republicans," were elected to what came to be called the "Permanent Committee." Ellicott claimed that the "election of this committee, as was really intended on my part, put the finishing stroke to the Spanish authority, and jurisdiction of the district."⁶

June 21st Committee

Permanent Committee

*Joseph Bernard	Joseph Bernard (chairman)
*Isaac Gaillard	Isaac Gaillard
*William Ratliff	William Ratliff
*Gabriel Benoist	Gabriel Benoist (secretary)
Bernard Lintot	Peter B. Bruin
Cato West	Daniel Clark
Anthony Hutchins	Roger Dixon
Andrew Ellicott	Philander Smith
Lt. Piercy Smith Pope	Frederick Kimball

* Also elected to permanent committee

The establishment of the Permanent Committee provided residents a clear choice. If citizens did not like who was on the committee or believed its purpose counterproductive to their aims, they could side with Spain. Some individuals, like Dunbar, protected their bridges and fostered friendships with both Gayoso and Ellicott. Dunbar

was sure of himself and did not need political alliances to tell him what he should believe.

However, Dunbar's friendship with both sides led the townspeople to question his trustworthiness, and rumors about him grew thick.⁹¹ Dunbar took these whisperings seriously and asked all of his neighbors to sign a certificate proclaiming that they knew nothing of any efforts on Dunbar's part "to raise an armed force for some [bad?] purpose."⁹² Less than two months later, when Governor General Carondelet asked Dunbar to accept the Office of Commissioner of Limits for the Spanish government, Dunbar replied that he could not accept any position that would jeopardize his privileges as a United States citizen.⁹³ However, he added, if Carondelet considered him only as a geometrician in the service of Spain, and not as a Spanish subject, he would accept the offer.

Dunbar recognized many advantages in helping to run the parallel. He knew that Ellicott could supply a powerful reference in Dunbar's quest to become surveyor of the new territory; by working for Spain on the division line, he would have ample chance to demonstrate his ability to the Quaker. Dunbar thus rendered a residence agreeable, in a land torn by competing sides, by maintaining relations with both Spain and the United States.

Soon enough, Ellicott discovered that the citizens of the area could generate as much discord as the Spaniards.

After the election of the permanent committee, the "difficulties," Ellicott reported, "were ... as great, if not greater, than any we met with from the Spanish government...." As the Permanent Committee began its work, familiar opposition arose. Many settlers had urged Anthony Hutchins to serve on this committee, but he had declined, citing his age--eighty-two--and his health. However, after attending the first committee meeting as a spectator, Hutchins became dissatisfied with its direction "which circumstance," claims Ellicott, "was immediately taken advantage of by Governor Gayoso, who expected by dividing the inhabitants, [he could] regain the power he had so lately lost."

Barely a month after the Permanent Committee had been formed, Hutchins approached Ellicott. Hutchins, who weighed scarcely over 100 pounds, was a tough, shrewd opponent." The old British colonel wanted to dissolve the Committee and hold another election. Ellicott, who gave his "decided disapprobation" to such a scheme, wrote that Hutchins, undeterred, immediately marched "into the hall where the committee was on business, and after a few preliminary observations, accompanied with abusive language, he told the members that they were 'no committee, that they were dissolved, and he would direct the election of another." Not one willing to negotiate, Hutchins further told the committee members that their dissolution "was a hard pill,

and rough bur, for them to swallow, but he would force it down their throats." Judge Peter Bruin, Ellicott's friend and a long-time resident of the district, and who had served in the Revolutionary Army, gave a measured reply to Hutchins' harangues: "Col. Hutchins you appear to be acting the dictator, and at the same time affect to be waving the American cap of liberty; but they are incompatible." "The cap of liberty," Bruin continued, "but ill becomes you, who opposed in arms the independence of the United States.""

The intrepid Hutchins then marched over to see Stephen Minor, the new Spanish representative for the region, to demand that a new election be held. Minor, a favorite of the Spanish, was a wealthy planter who had taken charge after Gayoso's promotion to Governor General. Operating under suspect legality, Hutchins pushed through the election of a new committee, which included Thomas and Abner Green, and he then assumed its leadership." This Committee of Safety and Correspondence immediately began intrigue against Ellicott by sending a protest to Washington. These movements split the community into anti-Ellicott and pro-Ellicott forces, with the former receiving encouragement from Spain."

These factions quickly developed but allegiances were confused. Although Hutchins was convinced that the Ellicott forces favored the townsmen--the merchants, the creditors, and those who supported a strong, clearly defined

government--Ellicott counted on those living in the countryside: the planters and debtors."

The Hutchins-Green-West forces attacked Ellicott on three fronts in order to pry away planter support. His views on slavery, reported desire to reallocate vacant lands, and purported land speculation all aroused opposition.¹⁰⁰ In defending himself, Ellicott vilified a large portion of the population. He divided Natchezans into four groups, three of them bad: People of ambition and enterprise; those who had fled from creditors; those who had escaped justice; and monarchists and traitors who had left the United States during the Revolutionary War. One could easily guess where he would place members of the Committee of Safety and Correspondence. Furthermore, the Quaker began pushing for a "territorial government similar to that of the North Western Territory" which would obviate committee rule.¹⁰¹

Matters worsened when the Court of Madrid announced in November 1797 the appointment of Carlos de Gran-pré to the governorship of Natchez. The Permanent Committee wrote Governor General Gayoso and declared in a "manly manner," a favorite phrase of Ellicott's, that Gran-pré would not be received. Ellicott also announced that he was aware that Hutchins, in a move almost identical to the one his brother Thomas had taken, had offered to help the Spanish by promising Gran-pré 200 men. Ellicott reported that "One of

the letters from Col Grandprie, to Mr. Hutchins, passed through my hands."¹⁰²

The tension worsened with the arrival of a large detachment of United States troops in the beginning of December, 1797. Ellicott claimed that the commandant of the troops was indisposed with an "inflammatory complaint on one side of his head, and face ... that evidently had an effect upon his understanding" because the commander became convinced that the Permanent Committee was an illegal body. The commandant ordered the committee to dissolve itself or "he should treat it worse than Mr. Hutchins had done."¹⁰³

Threatened with arrest, Ellicott expressed fully his view of orderly government. Those with property and respectable standing in the community were the most inclined to respect authority, while itinerant reformers, who possessed neither property nor a good name, "have under the specious garb of liberty, nothing but disorder and anarchy in view: they delight in confusion, for they are nourished and supported by it, like vermin by putrefaction."¹⁰⁴ Not only did Ellicott make an appeal to the landowners, as Carondelet had done in his earlier proclamation, he advanced the right of those orderly, propertied, and well-defined individuals to govern the land.

Ellicott's words--"vermin nourished by putrefaction"--revealed his distaste for disorder. Ellicott believed that communities and governments required clear guidelines and

sober governance by settled, stable individuals. Conflicts between Spain and the United States, he thought, stimulated the pretensions of the mob.

As the political crisis reached a climax, it just as quickly faded away. Suddenly, Gayoso informed Ellicott, on January 10, 1798, that Spain would evacuate the forts at Natchez and Nogales.¹⁰⁵ Understandably, Ellicott expressed guarded optimism at this news.¹⁰⁶ The two officials agreed to meet at Clarksville (in present-day Mississippi) near the 31st parallel, to begin demarcating the line. But they still had not determined a starting date, which meant that Ellicott still could not be sure that the survey would take place at all. Captain Isaac Guion was selected to help supply the expedition, but Ellicott accused Gayoso of manipulating the Captain to assure further delays. Ellicott wrote that he intended to start the line as early as possible and asked Gayoso to "name the day of the meeting."¹⁰⁷ Spanish resistance finally crumbled and Ellicott wrote his wife with glee on February 10, 1798, informing her that "I have at length worried the Spaniards out."¹⁰⁸ Still, seven weeks passed before Ellicott could record the end of the stalemate: "On the 29th of March late in the evening, I was informed ... that the evacuation [of Fort Panmure] would take place the next morning." Not wanting to miss this long-awaited event, Ellicott recorded that he "rose the next morning at four o'clock, and walked

to the fort, and found the ... rear guard just leaving it, and as the gate was left open, .. went in, and enjoyed from the parapet, the pleasing prospect of the galleys and boats leaving the shore."¹⁰⁹ The United States, fifteen years after the Treaty of Paris, assumed control of the Natchez District.

The Spanish had provided West Florida an internal stability unknown in the French and English periods. Their sure-handed rule and mostly competent administrators rose to the challenges offered by Native Americans, Loyalists, Patriots, and Frenchmen. That they ruled so successfully may be attributed to the tenacity and experience gained from almost three centuries of colonial dominion.

Dunbar had again shown himself to be extraordinarily adept in weathering political intrigue and unrest. As the Natchez District prepared to pass into the hands of the United States, he must have viewed his future with some optimism. Cotton was filling his pockets with great wealth and American governance of the district was sure to drive up land values. His long sought stability seemed at hand but the history of the lower valley region might have given him pause--the prospect of stable rule had many times proven illusory. Likewise, questions concerning land claims bothered him and he could not know what the United States intended in this area. Once again, he would have to

ingratiate himself to the new rulers and try to gain favor. The political fights he had encountered during transitional rule promised to make this a difficult task. But he held an advantage over other planters; with his skills as a surveyor, he could directly influence the course of events. As his increasing wealth and leisure finally afforded him the time to pursue his love of science, he also found that science could prove an important ally in the world of politics.

ENDNOTES

1. Quoted in Brooke Hindle, The Pursuit of Science in Revolutionary America, 1735-1789 (Chapel Hill, N.C.: Published for the Institute of Early American History and Culture, 1956), 329.
2. Spain officially ceded to the United States the area that included the Natchez District in 1795 but did not abandon the fort at Natchez until 1798.
3. D. Clayton James, Antebellum Natchez (Baton Rouge, La.: Louisiana State University Press, 1968), 27-28. Jack D. L. Holmes, "Law and Order in Spanish Natchez, 1781-1798," Journal of Mississippi History 25 (July 1963): 187. For an example of English, French, and Spanish being used in one trial's proceedings, see "Trial of Molly Glass for Murder 1780," Louisiana Historical Quarterly 6 trans. Heloise H. Cruzat, Laura L. Porteous, and J. Franklin Jameson, (October 1923): 589-654. Molly or Marie Glass was a free quadroon from the north of the Carolinas who was married to an English army deserter. Glass was convicted of torturing to death a 15-year old white girl named Emilia. Dunbar served as the justice for this trial. Dunbar Rowland, History of Mississippi: The Heart of the South. 2 vols. (Chicago: The S. J. Clarke Publishing Co., 1925), 289, 295, 301. Jack D. L. Holmes, "Irish Priests in Spanish Natchez," Journal of Mississippi History 29 (August 1967): 171.
4. "Extracts," 21. This quotation resembles a passage in Rowland, History of Mississippi, 297. Rowland either miscopied it or he relied on another source. The latter

possibility would mean that the "Extracts," which is attributed to B. L. C. Wailes, probably recorded in the 1850s, might have been available for Rowland's use. Despite the prospect of stability under Spanish hands, the volume of Dunbar's personal writings dropped precipitously during Spain's rule. The author of the "Extracts" comments on a gap in Dunbar's correspondence stretching from November 1786 to September 1795. This lapse does not include the thirty letters between Dunbar and his wife, Dinah, dating from August 11, 1789 to August 21, 1798. No evidence of a plantation journal for this period has been found.

5. "Extracts," 21.

6. Ibid, 20.

7. Holmes, "Law and Order," 199-200.

8. Quoted in Rowland, History of Mississippi, 297. Dunbar's views on Spanish rule and American citizenship appear in slightly different form in a December 29, 1781 letter to John Ross taken from the "Extracts": "I should have no objection to live under a Spanish or any other well regulated government provided my time was not misspent I am at all times sufficiently prudent and circumspect to [avoid?] giving the least umbrage to government and there is no need of the name of American to make my residence agreeable,..." "Extracts," 19-20.

9. Samuel Forman wrote that while he visited Natchez in 1790 he was courteously received by Gayoso and others. "Our family was much visited by the Spanish officers, who were very genteel men; and Major Minor was very intimate, and seemed to take much interest in us." Major Samuel S. Forman, Narrative of a Journey Down the Ohio and Mississippi in 1789-1790 (Cincinnati: Robert Clarke & Co., 1888), 54, 56-57. James, Antebellum Natchez, 54.

10. James, Antebellum Natchez, 31-33, 67.

11. Rowland, History of Mississippi, 301. Georgia politicians, referring to the state's colonial charter, laid claim to those lands that include most of the present states of Alabama and Mississippi.

12. Claiborne, Mississippi, 156. James offers a good, brief account of the Bourbon Country episode. See James, Antebellum Natchez, 55-57.

13. Rowland, History of Mississippi, 302. Abner Green, another of Thomas Green's sons, was elected to the Mississippi Society for the Acquirement and Dissemination of

Useful Knowledge, an early scientific society, on Nov. 5, 1803. Green would also hold the important position of registrar of probate.

14. Rowland, History of Mississippi, 294-95.

15. James, Antebellum Natchez, 54.

16. Gordon M. Wells, comp. "British Land Grants -- William Wilton Map, 1774." Journal of Mississippi History 28 (May 1966): 155. Claiborne, Mississippi, 136. Rowland claims that most of the population in Natchez was British in the 1770s but after 1782, Tory immigration to the area fell off and was replaced by patriots 'of the better class, men of good breeding, social position and wealth and who believed that the United States would soon control the area. See Rowland, History of Mississippi 269, 294-95. Political alliances in Natchez did not simply depend on which side a person fought in the American Revolution. The Green's gladly allied themselves, through marriage, with the wealthy and influential and retired British colonel, Anthony Hutchins.

17. Rowland, History of Mississippi, 302.

18. Ibid. Rowland reports that the Greens prospered during the Spanish period.

19. James, Antebellum Natchez, 64. James Hall, wrote in his history of the area, published in 1801, that Georgia and Georgia land companies still claimed much of the land in the Natchez District. See his A Brief History of the Mississippi Territory (1801. Reprint. Publications of the Mississippi Historical Society vol. 9 (Oxford: Published for the Society, 1906), 550.

20. "Extracts," 20, 21, 23.

21. Winston De Ville, The Baton Rouge Census of 1782 (Ville Platte, La.: Winston De Ville, 1987), 1-4. Four residences, or 25 percent of the total, listed 14 or more slaves. The number of slaves owned reveals local wealth and not overall fortune. Poussett, as did Dunbar, owned at least one other plantation. It will be remembered that Dunbar bought his "Spanish" plantation back in October 1778. On this plantation he produced scantling, pumpkins, grapes, experimental rice, cabbage, tobacco, and corn as late as August 1780. The plantation listed in the 1782 census is probably the one Dunbar referred to as the "English" plantation. See Dunbar, Life, 64, 74.

22. De Ville, Baton Rouge Census, 2. The exact amount of indigo produced remains in question. De Ville claims that the indigo was measured by pounds, see his preface to the 1782 census. Albert Tate Jr., in his analysis of the Census of 1786, records the amount as barrels. See Albert Tate, Jr., "Spanish Census of the Baton Rouge District for 1786," Louisiana History 29 (Winter 1983), 73. Dunbar wrote Dinah in 1790 to request that she send "a small bag with a gallon Indigo seed to the plantation at Natches." Dunbar to Dunbar, April 17, 1790, MDAH, Dunbar Papers, Z114.1, Series 1, Folder 2.

23. "Extracts," 21, 23-24.

24. Tate, "Spanish Census," 72.

25. A common sign off for Dunbar in his letters to Dinah was "Kiss all the children for Papa -- adieu my sweetest from your ever faithful." See Dunbar (William) Papers, Series 1, Box 1, Folder 9. Dunbar Cemetery, The Forest. I am indebted to Alma Carpenter for her genealogical work on the Dunbars. The other woman in the 1786 census may have been Dinah's sister, Jenny, who was staying with the Dunbars by 1789. See Dunbar to Dunbar August 11, 1789. MDAH, Dunbar Papers, Z114.1, Series 1, Folder 1.

26. Dunbar, Life, 36-37, 55-57, 65, 68-9. In 1790 Dunbar was in New Orleans on business from at least April 4 through May 3. In 1792 he remained in New Orleans from June 4 to July 10. See Dunbar to Dunbar, MDAH, Dunbar Papers, Series 1, Folders 2, 4.

27. "Extracts," 22, 28. "Notices," 9. Dunbar, Life, 76-77.

28. Dunbar to Dunbar, August 11, 1789. Dunbar's plantation journal ends on September 24, 1780; the lack of other primary sources complicates recreation of Dunbar's movements in the late 1780s. The Spanish tendency to document everything may yet yield some material, by or on Dunbar, in Spanish archives. The Historic New Orleans Collection houses dozens of surveys performed by Dunbar beginning in 1786. In "Notices" Dunbar was reported to have resided in Baton Rouge "for a period of nearly twenty years," which meant he would have moved to the Natchez around 1791. [5]. This corresponds with letters that indicate his family's move to The Forest plantation by 1792. See William's July 10, 1792 letter to Dinah addressed to the Second Creek, Natchez. MDAH, Dunbar Papers, Z114.1, Series 1, Folder 4. In The Natchez Court Records, 1767-1805: Abstracts of the Early Records, "The May Wilson McBee Collection," vol. 2 (Ann Arbor, Mich.: Edward's Brothers Inc., 1953), 66. Dunbar shows up in the book of accounts of Francisco Bazo, a

Natchez merchant who died in 1789. Since Dunbar had become surveyor of the area, he may have begun trading with Bazo in the late 1780s. However, in Life, page 115, Dunbar reveals in 1802 that another William Dunbar, "in the mercantile line," lives in Natchez. It is possible, though not probable, that Bazo's account refers to this other Dunbar. Dunbar's name appears in at least two court records dated February 24, 1790 and September 13, 1791. See Natchez Court Records, 52, 75. APS "Letter to Lewis Alston, Old Tunica, May 25, 1789. Misc. MS Collection.

29. Dunbar to Dunbar, October 25, 1789, MDAH, Dunbar Papers, Z114.1, Series 1, Folder 1.

30. Dunbar to Dunbar, April 4, 1790 and April 27, 1793, MDAH Dunbar Papers, Z114.1, Series 1, Folders 2, 5.

31. Dunbar to Dunbar, April 17, 1790 and May 3, 1790, MDAH, Dunbar Papers, Z114.1, Series 1, Folder 2. Dunbar, Life, 76-78. "Extracts," 28. Controversy surrounds the nature of the house constructed at this time. Arthur DeRosier Jr. argues that Dunbar designed the house and that this "finished product of Dunbar's architectural skill was the showplace of Natchez during the territorial period." Arthur H. DeRosier, Jr. "Carpenter's Estimate on the Building of 'The Forest'," Journal of Mississippi History 27 (August 1965): 259. Alma Carpenter disputes DeRosier's claim on two counts: Dunbar exhibited no evidence of being an architect, and the house built in 1790-91 was not a stately mansion, which later burned in 1852, but rather a "Louisiana raised-cottage." The document on which Professor DeRosier bases his claim, a handwritten carpenter's estimate in the Kammerdeiner Collection -- formerly the Marian Patty Papers -- appears to be addressed, as Ms. Carpenter contends, to Mrs. Dunbar: "A Bill of Captender & Joiner work for Misis Dunbars House." Even so, the name on the estimate constitutes minor evidence and while we cannot decide here the level of Dunbar's architectural expertise, if any, Carpenter's argument for the later construction of the famous estate by Dinah Dunbar around 1817, reportedly costing over \$30,000, is more compelling than DeRosier's reasoning, particularly in light of the fact that in 1790 Dunbar had not reached the economic affluence he would later enjoy. Alma Carpenter, "A Note on the History of The Forest Plantation, Natchez," Journal of Mississippi History 46 (May 1984): 130-37. The slave-made brick pillars of the house which burned, still stand on the old plantation site.

32. James, Antebellum Natchez, 48-49.

33. Dunbar to Dunbar, May 3, 1790.

34. James, Antebellum Natchez, 49.

35. Dunbar to Dunbar, May 3, 1790.

36. In most of William's letters to his wife, he gives her instructions on plantation business. Dinah would at times complain about the servants he had left her, calling them "worthless." Dunbar to Dunbar, August 11, 1789. Wives who served as managers or sources of support for working naturalists were not uncommon. Hannah Rittenhouse assumed her husband David's duties for the Office of Treasurer for the United States, which freed him from crushing war-time responsibilities and allowed him the time he needed for scientific interests. Hindle, Pursuit, 230. Lucy Audubon devoted most of her life to supporting her frequently unemployed husband. See Carolyn Delatte's Lucy Audubon (Baton Rouge: LSU Press, 1975).

37. The Dunbar's second child, Margaret, whom William affectionately called Peggy, was born on December 22, 1788. Dinah bore their third daughter, Eliza, on February 22, 1791. Carpenter genealogy. In "Notices," the author states that a small force of workers was sent to the 'Forest' in 1792 and in 1793, "Mrs. Dunbar and three small children were followed by the remaining family." "Notices," 9.

38. Dunbar to Dunbar, October 16, 1791 and June 4, 1792, MDAH, Dunbar Papers, Z114.1, Series 1, Folders 3, 4. In the "Notices" the situation was described as "in the phrase of Kentucky everything had to be taken from the stump." "Notices," 9.

39. James, Antebellum Natchez, 51.

40. Forman, Narrative, 53.

41. Holmes, "Law and Order," 200. Many of the men involved in Spanish government became the intellectual leaders of the Mississippi Territory. Their backgrounds varied widely, as seen in the person of John Girault (1755-1813). Girault was a Londoner who came to Natchez in 1785, after having fought with George Rogers Clark. He became the Escrivania Publica, a position akin to Clerk of the Court and Recorder of Deeds. Girault's Natchez settlement date appears in Order of First Families, 29. Girault describes his role as a Spanish official in, John Girault to ?, Natchez, Winthrop Sargent Collection, OHS, (Winthrop Sargent microfilm edition, roll 2, frame 395.)

42. In "Notices" the author states that "From Gayoso down to the lowest were his [Dunbar's] friends." [10]. One may suspect hagiography here but Dunbar's acquaintances were

certainly ethnically diverse, indicating that Dunbar circulated freely between groups.

43. Dunbar to Dunbar, April 12, 1793.

44. I am indebted to Alma Carpenter for first pointing out to me who Laveau was.

45. Ina Johanna Fandrich recently completed her dissertation on Marie Laveau. She came across numerous Marie Laveaus in her research. Personal Communication, September 12, 1994.

46. Spigelia marilandica, an upright, smooth perennial, features funnel-form flowers which are scarlet on the outside and yellow on the inside. See Charles F. Millspaugh, American Medicinal Plants (New York: Dover Publications, 1892), 523.

47. James A. Duke, CRC Handbook of Medicinal Herbs (1985), 456.

48. Millspaugh, American Medicinal Plants, 523.

49. Dunbar, Life, 22.

50. The Pinckney-Godoy Treaty was signed on October 27, 1795.

51. James, Antebellum Natchez, 52.

52. Ibid, 63.

53. Dunbar believed that the old English grants would create the most trouble since many inhabitants had settled by virtue of Spanish grants on land patented under the British government of West Florida. "Extracts," 29.

54. James, Antebellum Natchez, 67.

55. "Extracts," 29. John Hebron Moore, Agriculture in Antebellum Mississippi (New York: Bookman Associates, 1958), 13-26. A census taken in Natchez in 1796 reflects the cusp of change arising with cotton. Whites numbered 2828, Mulattoes 74, and "Negros," 1986. The white-black ratio would change dramatically in the next few years. See "Census taken at Natchez in Jan'y 1796," in the Winthrop Sargent Collection, Ohio Historical Society, Box 3, Folder 4; Reel 3, Frame 511.

56. Catherine Van C. Matthews, Andrew Ellicott: His Life and Letters (New York: The Grafton Press, 1908), 7-8. "Ellicott," DAB, 89. Ellicott's name is familiar to those who know Washington D. C. He surveyed the 10-square mile

area that would hold the new seat of the national government and his name appears in various parts of the city. Most of the inhabitants of the Natchez District occupied old British land grants of which there were two classes: those who renewed their land titles under Spain, and those who settled on lands considered abandoned by Spain and redistributed. Andrew Ellicott, The Journal of Andrew Ellicott (1803. Reprint. Chicago: Quadrangle Books, 1962), 154.

57. In Matthews, Andrew Ellicott, a copy of the commission to run the boundary line between Spain and the United States appears, signed by George Washington, May 24, 1796. See facing page 128.

58. Ellicott, Journal, 1.

59. Ibid, 11, 13, 16-17. Matthews, Andrew Ellicott, 137.

60. Ellicott, Journal, 3, 10, 18. Sargent was appointed as the Mississippi Territory's first governor in 1799. James, Antebellum Natchez, 59.

61. Ellicott shot the sun with a brass sextant made by the renowned instrument maker, Jesse Ramsden. Ellicott, Journal, 136.

62. Ibid, 22, 137. Ellicott took painstaking care with his measurements. Since establishing longitude required precise time measurements, Ellicott's inability to set up an observatory on the banks of the Mississippi River meant he could not use the regulator, or pendulum clock, which he had built and which he would use to determine longitudes at Natchez. An error of half of a degree, or a clock off by two minutes, would translate to a meridian off by 34 miles. Even with the many measurements he made at Natchez, Ellicott's longitudinal estimates were off by around five miles, still an admirably accurate measure for the time. See Philip and Phyllis Morrison's The Ring of Truth: An Inquiry into How We Know What We Know (New York: Random House, 1987), 137-39, for a helpful description of the complexities involved in determining meridians. The Morrisons use Ellicott's Natchez trip in their example.

63. A. W. Richeson, English Land Measuring to 1800: Instruments and Practices (Cambridge, Mass.: MIT Press and The Society for the History of Technology, 1966), 173.

64. Ellicott, Journal, 29-30.

65. Ibid, 37.

66. Beginning in December, Ellicott and his party had been pushing night and day down the river. Ibid, 40, 19-20. The delays sought by the Spanish brought him to slow boil. The Treaty of San Lorenzo, which had been ratified on April 25, 1796, had stipulated 'If there should be any troops, garrisons or settlements of either party in the territory of the other ... they shall be withdrawn from the said territory within the term of six months after the ratification of this treaty, or sooner if possible.' Quoted in Franklin L. Riley, "Spanish Policy in Mississippi After the Treaty of San Lorenzo," Publications of the Mississippi Historical Society 1 (Oxford, Miss.: Printed for the Society, 1898), 50.

67. Ellicott, Journal, 39-40.

68. Ibid, 40.

69. See "Ellicott," DAB, 90. For an extensive treatment of the politics which followed Ellicott's arrival, see Isaac J. Cox's The West Florida Controversy, 1798-1813: A Study in American Diplomacy (Gloucester, Mass.: Peter Smith, 1967), 32-44.

70. Ellicott, Journal, 41-42.

71. Ibid, 42-43. Daniel Clark, Sr. to W. C. C. Claiborne, Sargent Collection, Ohio Historical Society, Box 2, Folder 10; Reel 3, Frame 80.

72. James, Antebellum Natchez, 63-65. Spain purportedly wanted to use Natchez as a buffer to the British, who still occupied forts in the North. Claiborne, Mississippi, 166. Carondelet, in his Proclamation of May 24, 1797, to the citizens of the Natchez District claimed that the reinforcement of the fort at Natchez arose from the 'imperious necessity of securing Lower Louisiana, from the hostilities of the English,...' Quoted in Ellicott's Journal, 94. More importantly, Spain had not given up in her efforts to pull Kentucky and Tennessee out of the United States, which, in Spanish eyes, would effectively void the Pinckney-Godoy Treaty. Additionally, the United States' increasing friction with France gave the Spanish hope that they could reverse the treaty in case of a full rupture between the two countries. But such a reversal would only be plausible as long as the United States had not formally taken possession of the territory. See Riley, "Spanish Policy," 50-66. One may speculate that President John Adam's patient and somewhat unpopular peaceful stance with France during this period not only paved the way for the Louisiana Purchase, his tact helped thwart Spanish designs on Kentucky, Tennessee, and West Florida.

73. Ellicott, Journal, 43, 56, 88-89.

74. Dunbar, Life, 76.

75. Dunbar did receive payment for private surveys. In 1790, Samuel Forman, who professed no interest in Natchez land, reported that "Surveyor-General Dunbar, much to my surprise, called on me, and said that he brought the survey and map of my land, and presented a bill of sixty dollars for his services." Gayoso had given the unknowing Forman 800 acres of prime land and Dunbar urged the latter to accept the tract. Forman's fortune represents Spain's generous land grants where the grantee paid only for secretarial and surveying fees. Forman, who accepted the land and paid Dunbar's fee, later lost his Spanish title. Forman, Narrative, 54-55, 59. G. Douglas Inglis, "The Character and Some Characters of Spanish Natchez," The Journal of Mississippi History 56 (February 1994): 27.

76. Dunbar, Life, 77-78. "Extracts," 31.

77. Ellicott, Journal, 94.

78. Carondelet's proclamation is quoted in Ellicott's Journal, 67, 94. James, Antebellum Natchez, 63.

79. Ellicott, Journal, 96.

80. J. F. H. Claiborne, his ire breaching the boundaries of objectivity, wrote that Ellicott "brought with him, from his prim and semi-saintly home in Pennsylvania, the bitterest hatred of the Southern slaveholder, studiously disguised under a sedate exterior, but, like the treacherous moccasin, ever ready to strike." Mississippi, 160. Claiborne's diatribe arose from the clashes between Ellicott and Anthony Hutchins, the latter being Claiborne's grandfather. Claiborne's analogy to the water moccasin, or cottonmouth, is potent: Mississippians dread this snake. A chilling tale, common in the deep South, involves a man or sometimes, a woman, skiing in a southern reservoir who complains to the boat driver that he or she has been dragged through submerged barbed wire, a not unexpected event in what used to be farm land. As the skier erupts from the water, horrified observers see the victim covered with water moccasins, having disturbed them whilst they spawned. I came across this story in print for the first time in Can't Quit You Baby. Interestingly, the author, Josephine Haxton, is a direct descendant of Dunbar's. The snake has, through time, symbolized chaos. To decapitate the snake is to summon or create order out of the indeterminate--to create boundaries. See Mircea Eliade, The Sacred and the Profane,

trans. by Willard R. Trask (San Diego: Harcourt Brace Jovanovich, 1987), 54-55.

81. See Haynes, "Revolution of 1800," 239.

82. Ellicott, Journal, 2, 153. Ellicott records his view of slavery in his journal entry for September 18, 1796: "The country from the Susquehanannah to Potapsco, [This includes the Baltimore area. He was visiting his mother who lived on the Patapsco River.] does not appear to be in a better state of cultivation, than it was twenty-six years ago. This disagreeable circumstance, is no doubt principally owing to the system of domestic slavery, which yet continues to prevail in the southern states." Ellicott's feelings did not prevent from using slave labor to run the boundary line.

83. Ibid, 96-97. Samuel Forman reports that Hannon preached at Colonel Hutchins place, which would have been at his plantation at White Apple Village. Forman, Narrative, 58. Jack D. L. Holmes, "Spanish Regulation of Taverns and the Liquor Trade in the Mississippi Valley," in The Spanish in the Mississippi Valley 1762-1804, ed. John Francis McDermott (Urbana, Ill.: University of Illinois Press, 1974), 167.

84. Ellicott, Journal, 100-101. Hannon, according to official records, admitted to Gayoso that he was too drunk to remember the episode. Inglis, "The Character and Some Characters," 26.

85. Haynes "Law Enforcement in Frontier Mississippi," Journal of Mississippi History 22 (January 1960): 28.

86. Holmes, "Law and Order," 198-99. Daniel Clark, Sr. to W. C. C. Claiborne, Winthrop Sargent Collection, Ohio Historical Society, Box 2, Folder 10; Reel 3, Frames 81-82.

87. James, Antebellum Natchez, 33.

88. Ellicott, Journal, 104-105, 111

89. Ibid, 112-116.

90. Ibid, 117, 138. Daniel Clark, Sr. to W.C.C. Claiborne, Winthrop Sargent Collection, Ohio Historical Society, Box 2, Folder 10; Reel 3, Frame 82.

91. The reader will remember that Bernard Lintot was the father-in-law of Philip Nolan.

92. Dunbar to Hutchins, MDAH, Dunbar Papers, Z114, Series 1, Box 1, Folder 8. The certificate mentioned by Dunbar did

not appear in the papers. Some excerpts from his letter to Anthony Hutchins appear below.

During the late commotion, I discovered that a popular prejudice had arisen against me, which I naturally attributed to my holding a small office which calls me often to Gov.t house & therefore thought lightly of the matter. ; but being? further informed of a report circulating, that I was? employed to raise an armed force for some bad? purpose, I view this charge in a more serious ? and whether it has been propagated by malice or accident, it is not my purpose to enquire.... Were the report true, some one must be found to whom I have spoken, and my neighbours are the most likely to have received the first intimation of it. To them therefore I propose to apply; and to you as the most respectable of all my neighbours, I make the first application, requesting you will be so obliging as to do me the justice and favor to put your signature to the enclosed certificate....

93. "Extracts," 31.

94. Ellicott, Journal, 138-39. James, Antebellum Natchez, 70-74.

95. Hutchins (Odlin) Manuscript, MDAH. Hutchins' son, John, in perhaps a spell of father worship, claimed that he saw his father knock down a six-foot Indian with one blow. Hutchins had settled in the Natchez area in 1774, when "Natchez was a wilderness, a canebrake, a hunting ground of the Indians and the white man, where the buffalo, the bear, the panther and the wolf had their hiding places, indeed the whole country was a thicket of timber and cane in tangled masses...." John Q. Anderson, ed. "The Narrative of John Hutchins," The Journal of Mississippi History 20 (January 1958): 3.

96. Ellicott, Journal, 140-41. Daniel Clark Sr. uses similar language to describe Hutchins' actions. According to Clark, Hutchins marched into the room where the committee was assembled "stamped on the floor, Cromwell like, and pronounced with all the energy of his feeble lungs that they were dissolved and they were accordingly dissolved," whereupon the committee laughed at him. Daniel Clark, Sr. to W. C. C. Claiborne, Winthrop Sargent Collection, Ohio Historical Society, Box 2, Folder 10; Reel 3, Frame 83.

97. Ellicott, Journal, 142-45.

98. Ibid, 146.

99. William B. Hamilton characterized the Ellicott forces as conservatives and the Hutchins ranks as liberal. "In a word, the Federalist and Jeffersonian parities -- without the names -- sprang up in the Mississippi Territory by local spontaneous generation." See his "Politics in the Mississippi Territory," The Huntington Library Quarterly 11 (May 1948): 278.

100. Ellicott, Journal, 156-57.

101. Ellicott believed that the licentiousness of a large portion of the population boded ill for representative government in the area: "In case of such an event, creditors, might expect to be injured, if not ruined, gentlemen of probity, worth, and information neglected, if not persecuted, and public confidence annihilated." Journal, 152.

102. Ibid, 161-62. Ellicott frequently bestowed the modifier, "manly," for any act or person he considered exemplary.

103. Ibid, 162-64.

104. Ibid, 166.

105. Ibid, 167-68.

106. Ellicott's doubt was justified. Just as Spain seemed on the brink of following the treaty, trouble between the United States and France deepened. French privateers had plundered United States ships with increasing impunity by January 1798, and Ellicott spoke of establishing a United States consul at New Orleans, where the privateers disposed of many of their captured ships. Ellicott chose Daniel Clark, Jr., nephew to the well-known merchant of the same name, and a respected merchant in his own right, and a personal friend of Gayoso's. Clark, in Ellicott's eyes, admirably performed his duty -- acting with a "firm, manly, and decided conduct" -- and the young country gained respected representation at the port city. More importantly, the United States avoided war with France. Ellicott, Journal, 173-74.

107. Ibid, 169-70.

108. Quoted in Matthews, Andrew Ellicott, 155-57.

109. Ellicott, Journal, 176.

CHAPTER FIVE
THE GRAND SURVEY: TRANSITION AND POLITICAL CONTROVERSY

Do not forget to wind up your Clock, otherwise it will stop.
William Dunbar to Dinah Dunbar.

The political chaos accompanying the transition between Spanish and American rule took Dunbar off guard. He had not expected the angry outbursts directed against him and Ellicott, but he nevertheless knew what he had to do. Ellicott could provide the Scot valuable assistance in the latter's post-transition plans, especially in his bid for the top surveying job. Subsequently, Dunbar allied himself even closer to the Quaker. He soon discovered that his accomplishments in science and surveying could place him in a favorable light with both Ellicott and the United States.

The two principal surveyors running the 31st parallel, Dunbar for Spain and Ellicott for the United States, worked together for several months and provide a study in contrasts. Although they exhibited similar habits--a love of astronomical reckoning, precision, independence, ambition, and competitiveness--their techniques reflected different training and context. It would seem that a geodetic survey would be a type of scientific measurement the least influenced by place. Light pollution was not yet a problem in 1798; the stars and planets sparkled in the

Philadelphia sky with a brightness no less lucid than when they shone in Natchez. Yet, astral bodies appear altered to the viewer when seen from such separate latitudes and longitudes. Planets and stars will rise and set at divergent times, zeniths will appear to differ, and atmospheric conditions will influence sightings. The Quaker-Patriot and the Scot-Tory were accustomed to their own perspective of the sky. They used different instruments, sighted separate stars, and employed unique means in laying down the boundary. Though Dunbar and Ellicott could converse in the esoteric language of geodetic cartography, though they employed similar theoretical approaches, each surveyor's locale had produced dissimilar processes.

Neither Dunbar nor Ellicott had run an international boundary before this time. In fact, few men had ever surveyed on such a vast scale, over hundreds of miles through wilderness. The importance of an accurate line was heightened by the tense relations between Spain and the United States, which were further crippled by Manuel de Godoy's delay in honoring the Treaty of San Lorenzo. Mistakes on this boundary could plunge the two countries into war.

Hitherto, Dunbar's surveying duties for Spain consisted almost entirely of property (cadastral) surveys. In the latter case, the most common form of survey, the surveyor

determines the extent, value, and ownership of property for the cadastre (the public record). Dunbar performed hundreds of these surveys for Spain. Precise measurements in such appraisals provided an antidote, not always an effective one, for the venomous property disputes common in West Florida. The relatively small distances involved in this kind of boundary marking did not demand sophisticated techniques. Most anyone could run a chain in line with an oak tree. Yet the boundary was considered only as reliable as the man who marked it. Dunbar's erudition, his elevated place in society, and his surveying skills informed his lines, but a geodetic survey, which was required for an international border, transcended local importance.¹

Such surveys traced global features and they demanded expertise in mathematics, astronomy, and mensuration, and an obsession with accuracy. The smallest mismeasure did not mean that a property line would run on the wrong side of a stream--it could result in an error measured in miles. One's place in society would not cloak such a lapse and since other surveyors worked the line, mistakes would soon appear for all to see.²

The prospect of tracking a parallel through hundreds of miles of swamps and thickets, shadowed by danger, did not daunt Dunbar. As early as June 1796, not long after news of the Pinckney-Godoy treaty had reached the area, he had written his London friend and agent, John Swift, asking if

Swift could induce a "Geometrical friend" to "put down in a few words the most approved and most correct method of tracing a parallel of Lat." He reasoned that "some new thought may have been started on this subject--which has not yet reached us in this country." Dunbar knew that surveyors would be needed to mark the parallel and having distinguished himself as a dependable regional surveyor he was now eager to expand his role.

In 1797, Governor Carondelet had asked Dunbar to serve as Commissioner of Limits to mark the parallel for Spain. Both Gayoso and Ellicott pressed Dunbar to accept Carondelet's offer and even though the job's possibilities enchanted him, Dunbar had hesitated in accepting. He did not want to jeopardize his chances of becoming an American citizen. Although the pay for marking the limit was miserly, Dunbar recognized that by undertaking this trip, he would have an opportunity to discover "valuable lands and perhaps minerals of a precious nature!" He had some knowledge of chemistry and during the survey he planned to make assays using a portable laboratory.⁴ Apparently, even the best-educated men could not resist the promise of silver and gold. However, precious metals were only part of the expedition's allure. The plum he pursued was office, not ore.

For increasingly important reasons, Dunbar still craved the Office of Surveyor for the new U. S. territory. He had

written Secretary of State, Timothy Pickering, in 1797 asking for the job, listing Andrew Ellicott and John Ross as his references. Dunbar touted his service for the past 11 years as Surveyor of the Government of Natchez: "My knowledge of the Country," he wrote, "is complete being possessed of a general chart or [detached?] plans of all the surveys which have been made."

Dunbar knew better than most residents about the muddled conditions surrounding Natchez land grants. To John Ross he wrote, "The legality of land titles is involved in great obscurity which has not been removed by the Presidents message to Congress." The main problem, as he saw it, lay with the "Old English grants." "A considerable number of the inhabitants," he informed Ross, "are settled in virtue of Spanish grants on land formerly patented under the British Government." Dunbar was not exaggerating the confusion involving property rights; one commentator counted at least 22 different kinds of land titles which had been issued by the Spanish, many of them contingent on improvements. To further the puzzlement over land was the maddening fact that Spain had continued to issue titles after Pinckney-Godoy by simply antedating the grants. If Dunbar could become the Surveyor of the area, he would occupy an enviable position as the new government evaluated titles and validated claims.'

Dunbar's confided his deep anxiety about the durability of his own land grants to Dinah. He wrote her that the Territory's new governor, Winthrop Sargent, was thinking of spending the night at the Forest. "I wish he may do so," he continued, "as it will be a sign, that he intends to be upon good terms with us. This we must endeavor to bring about, by all means if possible; that we may be enabled to preserve our lots and lands about Town." Dunbar's land was threatened. Such a threat jeopardized his livelihood, his science, and his years of effort. He did not wish to leave so important a matter as land rights in fortune's hands.

Fortunately, Dunbar not only possessed skills and talents: he also owned superior scientific instruments. Several years earlier he had ordered from Swift an astronomical circle manufactured by the renowned London instrument maker, Edward Troughton. "There is soon to be seen in this country," he wrote Swift, "a line on the parallel of 31 being the limit by treaty between the territories of Spain and the United States." "I shall be glad," he added, "if my new instruments arrive before this is done, I conceive there will be no instruments in this Country so well calculated for this business as the Astronomical Circle armed with its acromatic Telescope." When it came, the Circle was one of the finer instruments of any kind in North America. The Spanish government, which lacked needed devices for the task, found that Dunbar and

his gadgets provided an answer to Spain protecting its interests.⁹

Dunbar's purchase of the Circle indicates how cotton had changed his fortune.¹⁰ It also reveals why Dunbar exerted so much caution in working with Spain over the parallel. The stakes had grown enormously in the past few years and expulsion by the United States would have forced him to abandon an area just when he expected lavish gains. His agreement with Carondelet allowed him to vouchsafe the line for Spain without jeopardizing his plans for American citizenship, but he still had to perform under the watchful eye of the short-fused Quaker, Ellicott.¹¹

Surveying the parallel required Ellicott and Dunbar to employ sophisticated observations of the heavens. Perhaps the great irony surrounding geodetic surveys is that surveyors must look to the heavens to find where they stand on the face of the earth. Describing the earth by the stars dated back to the time of Eratosthenes (ca 276 B.C.E.). The North African philosopher knew that when the sun reached its northernmost point, the summer solstice, that sun dials in the city of Syene (located slightly above the Tropic of Cancer) cast no shadow at noon: one could even see to the bottom of Syene's wells. With this knowledge, Eratosthenes then estimated the distance from Alexandria to Syene. He fixed a gnomon, or pointed stick, perpendicular to the

ground in Alexandria and, at noon on the summer solstice, he either measured the angle of the shadow produced by the gnomon or compared the ratio of the shadow's length to the gnomon's length. Either way he arrived at a proportion of approximately 1/50th a circle. By taking the distance between Syene and Alexandria and multiplying it by 50, he thus estimated the circumference of the earth with amazing accuracy.¹²

Land measurements and property lines, however, had appeared long before Eratosthenes, as indicated by Sumerian clay tablets and boundary stones.¹³ Sedentary civilizations require boundaries. Early surveyors used cords and rods with nonstandardized lengths to measure linear distances, and while a few used angular measurements, the lack of compasses and difficulties in accurately leveling instruments, created numerous errors. The inaccuracies may have produced particular problems in Egypt where boundaries were continually redrawn after the Nile's annual flood, but the methods employed must have been adequate since no writings prior to the Greek/Roman periods explore surveying in any serious way.¹⁴

Increasing technological and mathematic innovations slowly improved surveying accuracy. In the Middle Ages the magnetized compass helped orient surveyors, and by the seventeenth and eighteenth centuries, surveyors not only knew which direction they faced, but the increased use of

the telescope, trigonometric measurements, and instrument improvements also meant that they could delimit land with unprecedented surety.¹⁴

Still, up through the eighteenth century, most surveyors continued to survey localities by the "long lines," meaning that they forsook angular measurements and employed, instead, cords or rods as had been done for centuries. Arthur Burn's book, A New and Correct Method of Surveying (1776), an influential work, advocated this method; the surveyor's chain or pole he deemed preferable because of its simplicity, accuracy, and the elementary mathematics required.¹⁵

The chain continued to dominate surveying through the 1700s but its accuracy faltered on the grand scale and nation states turned increasingly to science to mark their boundaries. Ironically, an early governmental push for accurate topographical maps was in response to the bewildering complexity of Dunbar's native land of Scotland. During the 1746 Scottish rebellion, English commanders struggled with crude maps as they pursued Prince Charles and his Highlanders through the maze-like Grampian Mountains. In 1747, England commenced mapping the Highlands in an organized effort that evolved into the Ordnance Survey.¹⁷

Native Americans also relied on boundaries. While Europeans used maps for defense, offense, land grants, and a myriad of purposes, tribes like the Bayou Goulas and their

baton rouge had to separate their hunting lands from other tribes to ensure that enough game and vegetation would be available for their own survival. The 31st parallel, set to run through Choctaw and other native land, threatened these Americans. Dunbar, who knew the Indians would resent the survey, pointedly reminded Gayoso to take special care in pacifying the various tribes the surveyors would encounter.¹⁴

However, Ellicott was anxious to begin in spite of external threats, and finally took leave of Natchez on April 9, 1798, thirteen months after his arrival. As was his custom, Ellicott carefully recorded the temperature and commented on rivers, plants, and animals on his voyage down river. He even expressed his opinion of the inhabitants with uncharacteristic sentimentality: "The natives of the southern part of the Mississippi are generally a sprightly people, and appear to have a natural turn for mechanics, painting, music, and the polite accomplishments." But he had different words for Mississippians intellectual attainments, stating that "their system of education is so extremely defective, that little real science is to be met with among them."¹⁵ Ellicott's linkage of education and "real science" suggests a bias which held that legitimate science flowed only from those with a formal education. However, making such a connection in 1798 was an erroneous assumption.

Educational opportunities in the Old Southwest did come dearly and private tutors filled the bulk of the need for those who could afford such tutelage. However, some residents, such as Dunbar, had attended fine universities overseas, and their education ranked with that of anyone in the United States. Furthermore, Dunbar's advanced study of astronomy in London meant that his scientific training exceeded that of most U. S. citizens, including Ellicott. Lower Mississippians had produced numerous technological innovations without devoting much energy to science for the sake of knowledge but this was as true in Philadelphia as it was in Natchez. Insects, invasion, economic disaster, and other factors had placed a premium on sheer economic survival, and as Ellicott commenced the survey, he witnessed the workings of science in a competitive society.²⁰

Ellicott had encountered in Natchez stubborn, eccentric, and power-driven personalities, and he did not hesitate to castigate those who displeased him, but he nevertheless held warm feelings for Natchezans: "[T]he attention, politeness, and hospitality which I had experienced from the inhabitants on all occasions," he wrote, "had made strong impressions upon my mind ... though it was frequently the scene of difficulties, .. I could not direct my face from the town, until the last house disappeared."²¹

Ellicott's party floated to Clarksville, just north of the 31st parallel and by the morning of April 11, they had set up a clock and small zenith sector. During that day's twilight, at around 6:30 in the evening, they measured the zenith distance of Pollux, one of the twin stars in the constellation Gemini. Ellicott's calculations showed that Clarksville lay three miles, and two hundred and ninety perches north of the 31st parallel. His assistants, who included his son--whom Ellicott mentions here for the first time--then used a compass and surveyor's chain to mark the distance south to the 31st so as to establish a base camp."²²

The terrain offered an immediate challenge. The Mississippi, usually swollen this time of year, was low and the surveyors were forced to truck their great stores of instruments and supplies over cane-choked, uneven terrain. The main party decided to approach the starting point from the southwest, from Bayou Tunica (Willing's Bayou) some eight miles from Clarksville by land. They reached the Bayou on April 26th and by the first of May had encamped upon a hill near Alston's Lake, a place which came to be known as Union Hill, a symbol of two countries' peaceful coexistence. There the party enjoyed an "uninterrupted view, which was only terminated by the curvature of the earth."²³

On May 2nd they erected a wooden observatory so as to establish the initial measurements of the 31st parallel. Inclement weather delayed them until May 6th, but with that evening's clear skies, Ellicott pointed his zenith sector, with a nearly six foot radius--his most important instrument--to the heavens and recorded zenith distances for alpha Andromeda, Castor, and Pollux.²⁴ In referring to the stars, Ellicott commonly used the Greek-letter-constellation designation formulated by the German astronomer, Bayer, in the 17th century. The Greek prefix identifies stars by their brightness: α Andromeda is the brightest star in Andromeda. However, Ellicott did not follow Bayer's nomenclature when referring to Pollux and Castor, the famous twin stars in the constellation, Gemini (Bayer designation β Geminorum and α Geminorum, respectively). Some of the surveying instruments Ellicott had secured for the survey included three brass sextants, one of these made by the respected instrument maker, Jesse Ramsden; two zenith sectors, the six footer for highly precise measurements, and another of 19" radius; a large acromatic telescope with magnifying power up to 300, along with two other acromatic scopes--with telescoping tubes--used for taking signals and sighting Jupiter's moons; a transit and equal altitude instrument which Ellicott made himself and which he had used in running the boundaries for the district of Columbia; a regulator he also made back in 1784; and various other

compasses, stop watches, lanterns, and surveying equipment.²⁵ Ellicott continued his measurements for the next ten nights using stars in the constellations Pegasus, the Corona Borealis, Gemini, and Andromeda.²⁶

Dunbar, slowed by illness, joined the Americans on May 26, bringing his prized instrument: his astronomical circle.²⁷ Ellicott described the circle as a "portable observatory," "executed in a masterly manner.... The gradations appear to be perfect, so far as human dexterity extends."²⁸ Dunbar also carried a brass sextant--modeled after Hadley's design--for measurements not requiring exacting precision.²⁹

Like Ellicott, Dunbar also used common names to identify some of the stars he shot. But whereas Ellicott concentrated on the constellations Andromeda and Gemini, Dunbar pointed his circle most frequently at Arcturus, the third brightest star in the sky, which appears in the Boötes (Herdsman) constellation (Bayer designation, α Boötes).

In spite of Dunbar's protestations to Gayoso that the former was abandoning his unprotected family to a country without government or law--which was true enough--and that he would be exposed to privation and danger, which was also true, Dunbar did not venture into the wilderness without help. He had complained to Gayoso "that the Intendant wants to be very parsimoneous and even nigardly towards the officers of the Commission of limits it is ungenerous to act

thus towards men who are to be shut up in the woods." He compared the Americans' daily remuneration of nine dollars to the six dollars promised him by Spain and commented that "the high dignity of an Ancient Monarchy when put in competition with that of a new born republic demands a distinction." Dunbar argued that he would need no less than four male servants and a laundress to provide those articles "as are sometimes called the good things of this life."¹⁰ Just because one was in the wilderness, comfort need not be sacrificed. Evidently Dunbar was convincing since he billed the government over \$1533 for his approximately 96 days on the line, a rate of almost \$16 per day. But Dunbar's salary also included wages for his "boy" and this compensation remains mysterious.¹¹

Dunbar may have been charging the government rent for using his servant on the line, a common enough practice. However, surveying requires an assistant, and it seems likely that Dunbar would have trained one of his slaves to help him with surveying duties. Whether or not Dunbar would have brought such a helper on the geodetic survey cannot be answered at present but the rate of pay for his "boy" which appears on the invoice suggests that his helper was skilled in some service.¹²

After setting up his circle, Dunbar carefully checked Ellicott's first measurements with a series of his own observations which ran from May 31 to June 7. He expressed

general satisfaction with Ellicott's determination of latitude, commenting only that the U. S. representative had erred in Spain's favor by 0".063 or by about six French feet."

Ellicott had also established a line running East and West at the 31st parallel, deriving his coordinates by taking double altitudes of Arcturus on the prime vertical.¹⁴ Dunbar, "entertaining the highest confidence in the scientific knowledge as well as veracity of the American Commissioner, .. adopted this line, in order to save time, proposing to verify same."¹⁵

Dunbar occupied a delicate position here. Ellicott could provide a powerful endorsement for the U. S. surveyor position and Dunbar had already given Secretary of State Pickering, Ellicott's name as a reference. He held high hopes for the job and had earlier informed Dinah, "When the orders come down for establishing the new government; if I am appointed Surveyor, I think it will be right for me to quit immediately the service of Spain, but you can keep this to yourself."¹⁶

So Dunbar felt obliged to impress Ellicott with both his expertise and his character, a formidable task. The inhospitable environment and the high degree of exactitude required for the line would invite mistakes. Since the 31st parallel existed solely in the minds of men, rigor in measurement was the only standard of proof--disagreements

would hinge on the data. The parallel constituted science of the first order, the classification of nature by artificial construct, using the tools of mathematics. Dunbar and Ellicott had to reify this imaginary line by knifing an edge across the face of the wilderness, and they had to agree where the knife would fall. That Dunbar was able to impress Ellicott under these conditions testifies to his intelligence and savvy.

Dunbar's shrewdness is revealed shortly after beginning the survey. The sinewy cane impeded their progress, and at his suggestion, the parties split, so as to push the line in both directions. Ellicott and his men proceeded in a healthier, eastward direction while Dunbar and a number of slaves, carved a westward path through marsh, "through the low grounds to the Margin of the Mississippi."¹

Dunbar accomplished two important goals with this move. Having obviously earned Ellicott's trust, he could proceed without the constant concern of controversy. But Dunbar also wished to make an explicit point. He considered Ellicott's workers far inferior to slave labor: "the white people are a mutinous set, not easily managed," he wrote his wife." He felt that the Africans alone possessed the stamina and the discipline needed to clear the boundary and he asked Dinah if the crops were "so forward that a few of the negroe men be spared for one month."² Subsequently, a kind of competition ensued. Ellicott, with his belief in

the superiority of white labor, accompanied by 50 white laborers, and Dunbar with just "22 black laborers and a White Overseer" tackled the stubborn cane.⁴⁰

Dunbar's men succeeded. They cut a path sixty-feet wide and erected square posts surrounded by dirt "at the distance of one and two miles."⁴¹ Once at the river, they erected a monument as a testimony to their labor and to their boundary: "a squared post of magnitude 10 feet high, surrounded by a mound of earth 8 feet in height" some 88 French feet away from the Mississippi. On the post they "inscribed on the South Side a crown with the letter R underneath; on the North U. S., and on the West side fronting the River Agosto 18th, 1798, 31° Lat. N." Without the Africans, Dunbar knew that the boundary would have remained an abstraction. Their sweat made the line.⁴²

Towards the end of August, Dunbar readied to leave. On Monday, August 20, he returned to the base camp at Bayou Sara. Eight days later he reported that the line had been carried almost eighteen miles from the River Mississippi. He then announced his "intention of retiring from the Line agreeably to the Stipulation which was made at the commencement of this operation." "Accordingly," he wrote, "I set out on the 31st day of August, bidding a final adieu to the Gentlemen of both Commissions, with whom I had spent three months in a manner highly agreeable to my own taste, and with uninterrupted harmony on my part with every

gentleman of both parties." Ellicott, meanwhile, would labor on the line for two more years.⁴³

In their final reports, Ellicott and Dunbar exhibited a competitive boastfulness regarding their expertise. They prided themselves on their knowledge of astronomy, making frequent references to the French geometrician, Peter Louis Mareau de Maupertuis.⁴⁴ Ellicott wrote respectfully of the Frenchman, claiming that his own instruments followed the practices established by Maupertuis, whereas Dunbar continually disparaged the astronomer's famed Arctic Circle expedition.⁴⁵

Dunbar's document to the crown of Spain appears in three parts. He opens with a brief narrative on running the line, and it is here that he compares his company's difficulties with those experienced by the Arctic Expedition, which were well-known by this time. The Arctic Circle's troublesome insects, he believed, could scarcely compare to the hot, wet climate of the lower Mississippi, which generated a thick air that nourished "innumerable swarms of Gnats, and a variety of other Stinging and biting insects... [and] was infinitely more favorable for the Generation of Insects and noxious vermin than that of the French Geometricians." Although fires around the camp's perimeter and gauze curtains helped defeat "the attack of

these minute though troublesome enemies during sleep... they kept up a continual buzzing during the night."44

While the question of who suffered most remains unanswerable, Dunbar exhibited little patience over complaints of hardships. He believed that no naturalist, especially one who was just visiting another locale, would experience greater difficulty than what he lived with every day in the Natchez District. "The surface of the earth," in the lower Mississippi River Valley he wrote, "teemed with life; objects presented themselves at every step in this animated hot bed, not of those kinds which invite and delight the view of the inquisitive naturalist; but of the most disgusting forms and noxious kinds." He elaborated by writing that these disgusting forms included "Serpents of the waters frequently entwined in clusters to the number of several hundreds, a vast variety of toads, frogs, including the bull-frog, and the thunderous Crocodile, all of hideous forms, with a multitude of others too tedious to mention."45 Dunbar's descriptions would thrill herpetologists, but during the late 18th century, few Americans professed an interest in reptiles and amphibians, preferring instead to study animals more mammalian in appearance.

In Dunbar's view, little of what that the French geometricians achieved warranted extraordinary praise. Not even the fire that Maupertuis and his colleagues used to

clear land, being only a "dropt ... spark upon an immense collection of combustible matter" could match the Mississippi men's conflagration. After the slaves had cleared miles of cane to mark the boundary, a combustible bed, three to four feet thick was left. When ignited, the burning cane presented the men "a most astonishing line of fire, the flames ascending to the tops of the highest trees and spreading for miles." Searching for appropriate metaphors to describe the scene, Dunbar used military analogies: "the continual explosions of rarified air from the hollow cane resembled the re-echoed discharges of innumerable platoons of musketry and mocked every idea that could be formed of the effect produced by the conflict of the most formidable armies."⁴

In an odd way, Dunbar adopted a reverse conceit--a kind of frontier snobbism. Too many scientific explorers, he believed, gilded their hardships so as to endow themselves with glory. "Many of our modern Adventurers," he complained, "have established a very considerable reputation upon human credulity, by the display of imaginary sufferings,.. which in the country from whence I write, are submitted to and performed as the ordinary occurrence of every day."⁵ The extraordinary was, in Dunbar's world, ordinary, and phenomena which excited the drawing rooms of Europe, lay thickly around him in the intolerable heat. Dunbar viewed life as a grand competition; he freely matched

his exertions and accomplishments to the achievements of others.

The second part of Dunbar's survey report carried the caption, "Notes at my Encampment on the Bluff. Lat. 31° North." This loosely organized catalog of nature revealed Dunbar's wide-ranging interests; here he described the flora, animals, and natural phenomena of the lower Mississippi."

Although not a botanist, Dunbar's words denoted his love for plants and in these expressions there resided a supreme belief in utility. He continually sought to understand nature's intention and how he could use these products of the earth. After complaining that his "labors did not admit of time to be employed in botanizing," he carefully recorded the "most conspicuous productions of the Vegetable kingdom." Of first rank, was the Cypress. This sturdy tree, he wrote, "impregnated with a considerable portion of Resin," "delights to grow in low grounds frequently overflown." He described the Cypress's reproductive cycle and the various uses of the wood. "Cypress timber," he proclaimed, "is the most useful of any to the Inhabitants of this Country, being preferred before all others," for various needs. His interest in trees dated back to his scantling operations; his extensive comments on wood grains and durability showed that he had not sat idly by as his laborers rived the wooden giants."

He investigated oak propagation and used an acorn's anatomy to explain how this tree scattered its seed. The acorn's "comparatively small specific gravity buoys" it up while in water, he declared, facilitating seed transport during periods of floods and thus producing "distant colonies of this species."³³ He illustrated how "Nature has wisely ordered ... the growth of [the Water Poplar] from the seed [which] is so extremely quick that from the end of one Inundation to the commencement of the next, the young tree always surmounts the succeeding high water." Not only does this spread the species, it "is the chief means used by nature to secure annually many thousands of acres of new formed lands of our American Nile."³⁴ He observed that the Yellow Poplar (Tulip Poplar) swells and shrinks in accordance with the amount of moisture in the air and so fashioned a hygrometer from its wood, improving the wood's "sensibility by boiling it when very dry, in a solution of milk alkali or carbonated potash."³⁵ Likewise, Poplar wood is soft and not durable and has been used, he reported, by hunters to form rough boats. Its rapid growth, he speculated, might make it "valuable in many parts of Europe in order to Create suddenly ornamental forests around the seats of the Nobility and Gentry."³⁶

Dunbar also apprised local plant lore, adding his own analysis to popular wisdom. He endorsed the use of Horse Chestnut roots for cleaning woolens, chintz, and calicoes,

although he observed it to be ineffectual in cleaning cotton and linen. He doubted the almost magical qualities ascribed to the bane of southern woods, Poison Ivy:

We have a Vine called the poison vine, from a property it possesses of affecting some persons passing near it, by causing an inflammation of the face resembling an Erysipelas. Other persons may handle this vine with impunity. It is believed perhaps without reason, that some are affected by only looking at it."

Although Dunbar created his own categories of "Vegetable productions," grouping trees such as White Oak, Water Poplar, Bamboo Cane, and Willow based on whether or not they grew in swampy land, he did not do so out of ignorance of classification." He could provide the Linnean designation for the Bamboo Cane and other species and he would count stamens in classifying a flower. While studying water droplets with his microscope--which he had brought in hopes of discovering precious ores--he commented that he had seen in Europe some of the same microscopic animalcules that abounded in Mississippi water; other organisms that swam into his view he did not remember having been "described by any writer."

In spite of his interest in the practical coin of nature, his curiosity included less useful phenomena; the fertile serendipity of his surroundings continually amazed him. "On the 12th August," he wrote, "I had the happiness of viewing a most beautiful phenomenon, which if evidence had been necessary would have decided the question between the

ingenious Bernardin de St. Pierre and the System of Sir Isaac Newton."¹ The object of his pleasure: a rainbow.

The "Rain-bow" had aroused interest for hundreds of years. Newton had studied its beauty in his work on light, and came to the conclusion, in Dunbar's words, that "the colors of the bow are caused by the Sun's rays refracted and reflected by the globules of rain and that consequently every spectator is in the center of his own rainbow." The Abbe de St. Pierre, however, had believed that the Sun's rays passed "through an aperture of clouds and that consequently every spectator views the same rainbow,.. that change of place in the spectator does not alter the position of the bow,.. " and that the Abbe "never once found himself in the center of the bow." Dunbar compared these explanations with his own experience. "Returning from the low grounds on horseback about midday," he recorded in his journal, "I was overtaken by a very heavy shower of Rain, and seeing it in vain to look for any shelter I continued onwards and having began to mount the hill which was very steep and lay to the north." Before reaching the summit the storm had "considerably abated, and the Sun shone bright from the South, in this situation, according to Sir Isaac's principles, a rain-bow was to be expected." Dunbar soon found what he was looking for. "I was presented," he wrote, "with the view of the most beautiful one I ever beheld, the colors were the most vivid imaginable." He then discussed

various theories as to the origin of rainbows, stating that "according to the Abbe's theory I ought in passing on to have left this beautiful object to my right pictured and stationary upon the side of the hill, but on the contrary it attended me surrounding my shadow in a beautiful manner." Interested in seeing how his experience differed from the Abbe's theory, he "stopt to contemplate more at my leisure this beautiful phenomenon, and was surprised to find that it consisted of more than a semi-circle... this perhaps is the first natural rainbow exceeding a Semi-circle which has been seen by a human eye."⁶²

He was mistaken in thinking himself the only one to have seen such a rainbow but this episode revealed how he pursued science in the wilderness. Few individuals possessed both the theoretical background, the environmental context, and the opportunity to assess natural wonders in Dunbar's way. Visits from a Bartram were rare and the utilitarian habit dominated most of Dunbar's and others' energies in the new land. But some times Dunbar entered the world of pure science, a place adorned with rainbows, where utility gave way to curiosity. After spending his life calculating the best way to use people and things, he now enjoyed the leisure, the occasion, and the education to read the book of nature for its beauty as well as its application. In this view, he distinguished himself from most English-speaking natural philosophers of the late

eighteenth century. He did not enlist natural history as a way to glorify God; instead, he saw the world as beautiful and ordered in its own right--correct interpretations of its mysteries adorned human capacities and that was enough.

Dunbar's months in the wilds depleted him. He wrote Gayoso in November, apologizing for not having yet finished the narrative for the report, having suffered a long and serious illness. He was still unhappy with his descriptions and asked if the governor might have someone in town polish the prose. Dunbar had more confidence in the measurements themselves: "The description of the operations with the Astronomical and geometrical calculations being open to the examination of all persons will be found I am persuaded correct and agreeable to the best improvements of modern Astronomy."⁶¹

Still his illness lingered, and in March of the following year, he again apologized to Gayoso for not sending a copy of his notes and observations. Always prone to the area's fevers and agues, Dunbar was nearing 50 years of age, having now spent half of his life in the Old Southwest.⁶²

However, Dunbar still had much to do. A new power ruled Natchez. Winthrop Sargent, the governor for the Mississippi Territory, had arrived as Dunbar was finishing his observations on the parallel and Gayoso and Spain were

becoming increasingly irrelevant. After billing Spain for his trouble, which included the selling price of the astronomical circle, he increasingly turned his face toward his new country's concerns. He was eager to prove himself important to the new rulers of Natchez.

ENDNOTES

1. Hundreds of Dunbar's plats are still extant. Many of these are housed at the Historic New Orleans Collection. See EL 11.1984 Louisiana Land Surveys. The line of reasoning adopted here follows Steven Shapin's argument in his A Social History of Truth: Civility and Science in Seventeenth-Century England. Chicago: University of Chicago Press, 1994.

2. The longitudinal distance between two places is simply the difference in local time for each spot, with all clocks based on Greenwich time. Longitudinal accuracy relies heavily on precise times and the closer one is to the equator, where the world is spinning at 464 meters per second, the more important accuracy becomes. At the equator, an error of one second translates into a positioning error of half a kilometer. Anthony G. Randall The Time Museum Catalogue of Chronometers (Rockford, IL: The Time Museum, 1992), 2. Latitudinal measures are comparatively easy to make. Although the 31st parallel is a measure of latitude, the correct position of settlements, rivers, and other resources, which lay along this line, depended also on accurate longitudinal measures.

3. William Dunbar, Extracts from the Letter Book of William Dunbar of the Forest from 18 June 1775 to 20 March 1802. Together with a Biographical Sketch, compiled by B. L. C. Wailes [uncertain]. William Dunbar, MMC-alpha, Library of Congress, MSS 92-49826.

4. See Dunbar's 1797 letters to Timothy Pickering, Secretary of State, and John Ross where Dunbar mentions both his association with Ellicott and his desire to become surveyor "for the country of the Natchez." "Extracts," 27-28, 30-32. Dunbar would later question the motives of those who used science for material gain. This development indicates that he would later draw a line between those who pursued knowledge for its own sake -- a category he would use for himself -- and those who practiced science for profit.

5. "Extracts," 28.

6. Ibid, 29.

7. Ibid, 47-51.

8. Dunbar to Dunbar August 21, 1798, Dunbar Papers, MDAH, Z114.1 Series 1, Folder 9.

9. "Extracts," 25-26, 30, 35-36, 43. William Dunbar, Life, Letters, and Papers of William Dunbar of Elgin, Morayshire, Scotland, and Natchez, Mississippi, Pioneer Scientist of the Southern United States. edited by Mrs. Dunbar Rowland (Eron Rowland) (Jackson, Miss.: Press of the Mississippi Historical Society, 1930), 79; The price Dunbar paid for the astronomical circle is not given; however, he sold it to Spain for \$840.00.

10. D. Clayton James, Antebellum Natchez (Baton Rouge, La.: Louisiana State University Press, 1968), 51-52.

11. A letter to his wife on June 6, 1798 shows the limit of Dunbar's agreement with Spain: "I have consented only to undertake the business for a short time, the condition is that I leave off whenever I please, but I have promised to go thro the Settlement." Dunbar to Dunbar, Dunbar Papers, MDAH, Z114.1 Series 1, Folder 9.

12. Eratosthenes' estimate of 23,116 miles is an approximation. Scholars do not agree on the length of a stade, although a common value is 148.8 meters. The 23,116 figure arises from converting Eratosthenes' Alexandria to Syene distance to meters, dividing that number by 1609.3 (meters per mile) -- which gives a total of 462 miles -- and then multiplying 462 by 50. See Michael J. Crowe, Theories of the World from Antiquity to the Copernican Revolution (New York: Dover Publications, 1990), 30-31. Modern calculations of the Earth's circumference place the value at approximately 24,900 miles. Eratosthenes had assumed that the world is a perfect sphere which accounts, in part, for his lower estimate.

13. A. W. Richeson, English Land Measuring to 1800: Instruments and Practices (Cambridge, Mass.: pub. jointly by The Society for the History of Technology and The M.I.T. Press, 1966), 3.

14. Richeson, English Land Measuring, 2. Recent work on irrigation canals in South America indicates that ancient engineers may have used water in a container to level or grade earth works.

15. Ibid, 130-35.

16. Ibid, 156, 158.

17. Ibid, 175.

18. See Andrew Ellicott, The Journal of Andrew Ellicott (1803. Reprint. Chicago: Quadrangle Books, 1962), 181, 213-14 for mention of Choctaw, Creek, Euphales, and Seminole displeasure over the line. The reader may remember that the original reason for using the 31st latitude, as stated in the treaty following the French and Indian War, was to protect Indian lands from settler encroachment -- a strategy aimed at protecting settlers. "Extracts," 37. Dunbar's fears proved valid. On June 10th, Gayoso sent Ellicott a note warning him of the "hostile disposition of the Indians." Ellicott dismissed the governor's letter as a further effort at delay and proceeded with the line. Tensions mounted as they continued eastward, and after Dunbar had left the team, the party was forced to send the astronomical circle away just days before an Indian attack at the mouth of the Flint River in East Florida. Ellicott, Journal, 181, Appendix 48.

19. Ellicott, Journal, 135. Emphasis added.

20. William B. Hamilton, "Jefferson College and Education in Mississippi, 1798-1817," Journal of Mississippi History 3 (October 1941): 259.

21. Ellicott, Journal, 177.

22. Ibid, 177-78. A perch is a British designation for a rod. Although the length of a perch in 1798 may differ slightly from current measures, present-day rods are 5.50 yards or 16.5 feet -- slightly over 5 meters. So in Ellicott's estimation, Clarksville lay 3 miles, 4785 feet north of 31 degrees latitude.

23. Ibid, 179.

24. Ibid, 177, 180.

25. Ibid, Appendix-45. Jesse Ramsden (1735-1800) opened his London instrument shop around 1760. Maintaining a high degree of accuracy with manual divisions of circles was difficult and Ramsden divided circles better than most. Soon afterwards, demand for his precise instruments outstripped his ability to produce them. This led to his construction of a machine that could accurately divide circular and rectilinear scales. Richeson, English Land Measuring, 169-72, 174.

26. Ellicott, Journal, 180.

27. Ibid, 180; Dunbar, Life, 79. Dunbar's account of the survey is found in the document, "Report of William Dunbar to the Spanish Government at the Conclusion of His Services in Locating and Surveying the Thirty-First Degree of Latitude." Troughton constructed the circle on the principles established by Jesse Ramsden. In a letter to Dinah on June 6, 1798, Dunbar reported a return of his "complaints" but reported that lime water had cured him. Dunbar to Dunbar, Dunbar Papers, MDAH, Z114.1, Series 1, Folder 9.

28. Ellicott, Journal, Appendix-48.

29. Dunbar, Life, 79.

30. "Extracts," 35-36, 38.

31. Ibid, 43.

32. Dunbar does not mention having an assistant on any of his surveying trips. The fact that he and Ellicott described their instruments and not their helpers reveals the lost identity of the latter.

33. Dunbar, Life, 79. Dunbar wrote that the ratio of the English foot to the French foot was 107 to 114, making the French foot slightly longer than its English counterpart -- a desirable trait for a wine-producing country. Linear measurements varied considerably during this period, especially across international boundaries. French philosophers would promulgate the metric system -- based on the distance from the North Pole to the Equator -- the following year. Winthrop Sargent Collection, Ohio Historical Society, Box 2, Folder 12; Reel 3, Frame 258.

34. Dunbar, Life, 80; Ellicott, Journal -- Appendix, 51.

35. Dunbar, Life, 80.

36. Dunbar to Dunbar June 6, 1798. Dunbar Papers, MDAH, Z114.1, Series 1, Folder 9.

37. Dunbar, Life, 80-81.

38. Dunbar to Dunbar June 23, 1798. Dunbar Papers, MDAH, Z114.1, Series 1, Folder 9.

39. "Extracts," 32; Dunbar to Dunbar, June 6, 1798.

40. Dunbar to Dunbar, June 23, 1798.

41. Dunbar, Life, 80-81.
42. Ibid, 81.
43. Ibid, 81, 105.
44. Maupertuis was the leader of France's Arctic Circle expedition, which sought to determine the shape of the earth.
45. Ellicott, Journal, Appendix - 44-45; Dunbar, Life, 82-84.
46. Dunbar, Life, 82. Dunbar had obviously never visited the Arctic Circle during the spring time.
47. Ibid, 82.
48. Ibid, 83.
49. Ibid, 84.
50. Ibid, 82-99.
51. Ibid, 84-85.
52. Ibid, 86.
53. Ibid.
54. Ibid, 90.
55. Ibid, 87.
56. Ibid, 96-97. Erysipelas is an acute infectious disease of the skin and mucous membrane.
57. Ibid, 93-94.
58. Ibid, 88, 96.
59. Ibid, 88.
60. Ibid, 89-90.
61. "Extracts," 42.
62. Ibid, 44.

CHAPTER SIX
SCIENCE AND POLITICAL STRIFE IN THE MISSISSIPPI TERRITORY

Political discord profoundly affected the direction of science in the Mississippi Territory. Ordinarily, scientific investigation requires cooperation, interchange, and support in order to prosper, but all these proved in short supply as residents positioned themselves for personal, rather than scientific, gain. Although the Natchez District now belonged to the United States, divisions that dated back to Patriot/Loyalist controversies still lingered and filled the air with dissension. Even the arrival of the Mississippi Territory's first governor, Winthrop Sargent, who was a devotee of science and a member of the American Philosophical Society, did not further the expansion of science in the region. If anything, Sargent's uncompromising Federalism in a increasingly Republican district crippled the tenuous steps to organize science in the Territory.

Winthrop Sargent (1753-1820) pursued science with a near-religious devotion. Intelligent and brutally objective, he methodically analyzed curiosities and communicated his findings to others. In Mississippi, he

joined Dunbar, his fellow surveyor. This pair, who held similar intellectual aims, might have established a scientific presence in the Old Southwest. Yet, they failed to encourage the other's scientific work as a result of political and personal difficulties.

Sargent was an administrator who liked to set rules and then see that they were followed. He may have dreamed of collecting curiosities in the Southwest, but the governorship shouldered him with a deadening burden, and he directed his considerable energy into political survival.

Although the Natchez District thenceforth belonged to the United States, its remoteness and the area's strident factionalism tarnished the district's appeal to prospective settlers. Crude roads, little more than tracks through dense woods, and a thousand miles separated Natchez from the heart of the country. The closest American town, Memphis, lay over 200 miles away. The disruptions and infighting during the last years of Spanish rule had unsettled the populace and many of them looked elsewhere for land. A Natchez census of January 1796 showed 2,828 whites, 74 mulattoes, and 1,986 slaves--a total of 4,888 persons. Two years later, during the turmoil with Ellicott, this figure fell to about 4,500 persons for the entire District.¹

However, the land's fertility was legendary, and the slaves' ability to gin cotton into gold made the Territory a place of great expectations. With Sargent's arrival in 1798

the United States exercised firm control and the population rebounded quickly: by 1799, a District census recorded 4,446 whites and 2,995 slaves, a dramatic increase of 60 percent.²

Sargent, who was Secretary to the Northwest Territory before being tapped by President Adams, was a safe choice for the governorship. Born in Gloucester, Massachusetts, to Puritan parents, he graduated from Harvard and readied for a career in government. His role in surveying the Seven Ranges with Thomas Hutchins proved that he was adventurous and courageous, while his duties as Secretary entailed frequent contact with local tribes. A man of many talents, Sargent's appointment boded well for Mississippi.³

The new governor's devotion to scientific pursuits had become apparent during his years in Cincinnati. Burdened by a multitude of duties and a case of gout that Sargent claimed was "so painful as to keep me awake & will not suffer me to wear my shoes," he overcame enormous impediments to indulge his passion for scientific exploration, publishing articles on antiquities, tumuli artifacts, and trees. His efforts led to memberships in the American Academy of Arts and Sciences and the Massachusetts Historical Society, in addition to his APS affiliation.⁴

Sargent's persistence in his research reveals part of the nature of frontier discovery and it illuminates Daniel Boorstin's statement that Americans "needed neither boldness

nor imagination" for discoveries. "In ancient populous England," Boorstin claims, "nearly every new fact or experience was gained by effort, talent, or courage. Not so in America, where novelty seemed to force itself on even the most indifferent and insensitive eye." Undoubtedly, novelty suffused America and opportunities of discovery did literally fall at Sargent's feet, but Boorstin overstates his argument. One of Sargent's publications featured his careful observations and drawings of artifacts found in an Indian Mound, a tumulus. Reaching the tumulus required little effort since "one of the main streets of the town passes through the Western part of this grave, and in the frequent repairs of the acclivity, human bones have often been found." However, scientific discovery required more than simply unearthing objects. Boorstin overlooks the efforts and intelligence needed for apprising and recording such discoveries. Sargent's time was precious; he faced many dangers, being wounded twice during expeditions, and pressing responsibilities shrank his leisure time. But in his precious spare moments, he painstakingly analyzed, described, recorded, and preserved objects of curiosity. He measured the tumulus, noted the tree growth on the mound--a common dating technique--drew with exacting precision the artifacts he had found, patiently described them, and then shipped them to Philadelphia. These labors required a trained mind, one aware of the important questions,

disciplined in scientific description, and infused with a deep love of knowledge.

Although Cincinnati was now behind him, Sargent could expect a degree of continuity in his new assignment. Mississippi's laws would be "in all respects similar to that now exercised in the territory northwest," save for some "minor" differences.⁷ Congress viewed the Mississippi Territory in the same way as it pictured the Northwest Territory--as vast new lands waiting to be surveyed and sold in service to the public debt. However, the Old Southwest was not the Ohio Valley.

The confusion of British, Spanish, and Georgia land grants still disquieted territorial land owners, and the United States' procedures for recognizing legitimate land claims remained unclear. The Act of Establishment, which listed guidelines for ruling the area, specified that the United States would "in no respect impair the right of the state of Georgia, or of any person or persons either to the jurisdiction or the soil of the said territory,.."; a policy which settled nothing.⁸ Another difference between the Northwest and the Mississippi Territories was slavery and Section 7 of the Act of Establishment would have chilled planters' hearts:

it shall not be lawful for any person or persons to import or bring into the said Mississippi territory from any part of place without the limits of the United States, or to cause or procure to be so imported or

brought, or knowingly to aid or assist in so importing or bringing any slave or slaves,...

Violators would be forced "to forfeit and pay for each and every slave so imported or brought the sum of three hundred dollars."

Few people could have mastered the exigencies that Sargent faced when he arrived in Natchez on August 6, 1798. Blurred lines of authority--a result of committee rule and vicious infighting--still resonated in the District.¹⁰ Lax law enforcement had given residents, who were accustomed to the freedom of a frontier community, an even greater degree of latitude, and preachers complained of vile morality. Richard Custis, a Baptist minister, the bane of Natchez' governors, had even drafted an address, signed by his fellow clergy, that described for Sargent the moral sinkhole that was Natchez. It is a place, Custis declared, "[W]here even Blasphemy, Adultery and Fornication, as well as other vices, have by long habits and custom, become so common and fashionable as to escape public censure." It is a town, he continued, "[W]here piety and virtue have been and still are by most people wholly neglected and where good men are scarce & generally dispised while wicked men have been honoured, and many of them highly promoted."¹¹

Unfortunately, Sargent could not rely on Philadelphia to help with these problems. Letters from Natchez to Philadelphia supposedly averaged five weeks in transit, but Sargent's letters to the capital required two months to

reach there. Assuming a timely response, he would wait over four months for an answer to a query and time was not Sargent's ally; those who opposed Federalist rule usually acted first and questioned later, and they seethed against his administration.¹²

Natchez' distance from Philadelphia not only made the government less accessible, it hindered communication with scientific societies. Even so, a letter from Benjamin Smith Barton of Philadelphia, dated October 30, 1798, demonstrated Sargent's intention to continue his scientific work during his governorship.

In his letter, Barton, professor of botany and natural history at the University of Pennsylvania, thanked Sargent for some plants the latter had sent him, finding them "very acceptable." The Philadelphia naturalist then asked for two favors. "I am very desirous," he informed Sargent, "to have a good collection of the words of those nations with whom (from your situation at present) you have the most connection." Indian vocabularies were of high interest among Philadelphia's savants during this period. Even Jefferson was busily compiling an extensive collection of Native American words. Since Barton was a botanist, he also thought to ask about the local fauna: "Our knowledge of the plants of your country is very limited. We know enough of this country to know that your plants are numerous and very fine."¹³

Barton's requests offer insights into how science could be both narrow and expansive. He believed that mound builders had originated in Asia, migrated to Mexico, and then spread eastward: "The Mexicans, a number of circumstances have induced me to believe, were the ancestors of the nations known by the name of Choktah, Chikkasah, &c."¹⁴ The Natchez, who had ruled much of the area now inhabited by the powerful Choctaw and Chickasaw tribes, had built impressive mounds. If Barton could draw parallels between the languages of the area's tribes and those of Mexican tribes, then he would strengthen his argument for Mexican origins. He was finishing a new edition of his book on Native American languages and he was eager to add the Natchez language to his reasoning. "It is commonly understood," he wrote in a letter to Sargent, "that the Natchez, as a nation, are extinct, but [still?] suppose, it will be possible to procure a specimen of their language. This is what I very greatly want, as the Natchez were one of the most cultivated tribes in North America."¹⁵

Although Native languages intrigued Barton, he was primarily a botanist and he knew that the southern woods hosted a myriad of species. His many duties kept him from extensive collecting trips, but Barton knew how to extract specimens from local collectors and for those he knew to be extraordinarily busy, as was Sargent, he made suggestions: "If you could engage some active person to make a collection

of the plants, I would cheerfully pay him for the trouble." Barton slyly apologized for troubling Sargent and then tried to remove any remaining resistance by declaring "I should be very unwilling to trouble you if I were not sensible of your attachment to science."¹⁶

Sargent would have considered it a relief if his only worry had been collecting plants. But governing the Mississippi Territory was proving difficult. Diplomacy and charm might have helped matters, as they had for Gayoso, but Sargent refused to dissemble. As a New England Puritan with high morals, he was alien to the directions and manipulations of Mississippians. They gossiped that he was cold and difficult.¹⁷ He forestalled some enmity by marrying--within three months of his arrival--the wealthy widow, Mary Williams, a move which normally speeded one's entrance into Natchez nabobery, but not even matrimony could help in the end. In less than six months, many of Natchez' residents despised Sargent beyond rational bounds.

Ironically, in trying to curtail such animosity, Sargent had committed the unforgivable mistake of asking Ellicott to recommend gentlemen for government appointments. Ellicott's list omitted the names of those whom he despised, such as Anthony Hutchins, but Sargent knew that Hutchins and his allies could not be ignored. Although the old colonel himself was ineligible for appointment--he still drew half pay as a former British officer--Sargent offered commissions

to many men in the Hutchins/West clans. But the exclusion of Hutchins proved an "insuperable Bar" to most hotheads accepting these offers and many of those who acceded to Sargent's requests did not serve long."

Dunbar ranked high in Ellicott's confidence, and he figured largely in Sargent's plans. The governor had sent Dunbar the laws for the new government and asked him to choose the official capacity in which he wished to serve. After perusing the codes, Dunbar responded that he might render himself "sufficiently qualified to discharge the duty of Judge of Probate or that of a simple Country Justice." His study of Blackstone and of Burns convinced him that he could discharge either duty satisfactorily, but he felt less confident of his ability to serve on the bench of Courts of Quarter Sessions and Common Pleas. He recognized his limitations here, noting "Those persons who have never been in a situation to obtain either theoretic or practical knowledge of the Laws of the U. S. must indeed be awkwardly situated on either of the benches." Nevertheless, Dunbar accepted a seat on the Court of Quarter Sessions, as well as an appointment as judge of the probate for Adams County, the county which included Natchez. But the political heat continued to rise in 1799, subjecting Dunbar to increasing harassment."

Protests over Sargent's every action had now escalated to threats, ranging from the courtly to the crude. Adam

Bingaman, one of the Georgian immigrants and now a wealthy landowner, castigated Sargent in a style typical of gentlemen in the Old Southwest: "Your Excellency will excuse the freedom I take in acquainting you that I am not totally insensible of the ungenerous insinuations contained in one part of your letter." In that letter, Sargent had admonished Major Bingaman for declining the post of Commander of Infantry in the Southern Legion, after having first expressed his condolences to the Bingamans for the loss of a child. The major responded to Sargent's diatribe with a dark observation:

[H]ad not your Excellency's character been so unpopular among the citizens of this Territory and the whole Tenor of your administration found exceptionable in the minds of those men with whom I had to [act?], your Excellency & myself would not have had occasion to correspond in the present form.²⁰

Bingaman employed a subtle reference to the code duello, which lay beneath the surface of provocations between equals, but men of the lower classes were more direct. Johannes Degrote, in a neatly lettered, seven-and-one-half-page epistle to Sargent, declared "Everybody dus no da Elicot and Minor has duped you, and ruined your reputation, and dareby you has ruined and confused de countree, for you has made de peoples as unhappy as you will be miserable."²¹

Even Sargent's allies, such as Dunbar, could not shake the chill of the man. In a letter to his partner Ross he wrote, "I am upon as good terms as it is possible to be with [a] man of the phlegmatic, frigid and austere disposition of

Governor Sargent." Dunbar went on to isolate what it was about Sargent that the people found so exceptional: "It is impossible that a mind so rigid and inflexible can give satisfaction to a free people.... It is on this account that the body of our inconsiderate citizens already manifest a disposition to be dissatisfied with every thing done by the Governor." Dunbar noted that Sargent did not bend the law for himself, stating, "I have not observed any tendency in his conduct to step beyond the boundary of law," but nevertheless, Dunbar continued, "he knows not how to be gracious and the lower class say he is haughty."

During Sargent's administration, Natchez still carried a well-deserved reputation as a renegade town, and life there could be tentative and harsh. Although Natchezans could tolerate most things, they could not abide a governor who combined an unbending piety with a lack of courtesy and manners. Sargent, and those who walked under his banner, suffered.

As a result, Dunbar grew increasingly disheartened with local politics, but his scientific interests offered him a refuge, a respite that could transport him beyond the high emotions streaming between Federalists and Republicans. Three letters, all written in 1799, detail the nature of his escape. Two of these letters he sent to London: one to John Swift, the other to William Herschel, the Royal Astronomer.

In both messages, Dunbar exhibits a childlike joy as he pursued the stars.

His note to Swift reflected Dunbar's new-found wealth. Believing it would cost around 2,000 dollars, he asked his agent/friend to send books and various instruments, such as barometers, thermometers, and globes. But his main desire was "a Grand Tellescop." With this telescope, a 6-foot Gregorian, he would combine a fine pocket chronometer and a good regulator, giving him, he believed, an observatory "better furnished than any to the west of 80 degrees longitude"--a line that extended from Pittsburgh to Charleston. Dunbar was no dilettante in these matters and he gave Swift detailed instructions for the construction, improvement, and selection of the finer mechanisms which he had ordered.³

However, his letter to William Herschel showed that Dunbar's interest in science extended beyond that of instruments. He was reaching out to the world of natural philosophers, always with an eye as to what these philosophers wished to know.

Frederick William Herschel (1738-1822), like Dunbar, delighted in astronomy. He was born in Hanover to Protestant parents. The family moved to England and Herschel became an accomplished musician, spending the earlier part of his adulthood as organist to the Octagon Chapel in Bath. But he also loved to observe the stars and

used his leisure to read astronomy texts and to study the heavens. He burned with such determination to own a telescope that he constructed one himself, a Newtonian model of 6-feet focal length for which he polished his own mirrors. In 1781, using this telescope, he was the first to recognize that a certain heavenly body was not a star, but a planet; a planet he named *Georgium Sidus* (George's Constellation)--now known as Uranus. He gained acclaim with this discovery and the following year, George III appointed Herschel as His Majesty's private astronomer.²⁴

After its discovery, however, Uranus presented astronomers with a dilemma. Newton's formulas for describing planetary orbits had proven their power throughout the century but this new planet's orbit deviated from most predictions, presenting a small threat to the Newtonian universe. The planet's vast distance from the Earth, however, made it difficult to track and many believed, particularly Herschel, that only exacting measurements would resolve discrepancies.²⁵

Dunbar evidently knew of Herschel's interest in Uranus, because in his letter he submitted for Herschel's "consideration an invention of a new micrometer to facilitate the art of measuring telescopic angles on a large scale..."²⁶ Dunbar apparently never received a response to his epistle, but it was evident that he was now reaching his stride. He even gave Herschel the coordinates of his

wilderness observatory, letting the astronomer to the king know that eyes in a different perspective were watching the sky with him.

Dunbar's fame was spreading, and others in the scientific community began noting his activities. Ironically, in the summer of 1799, in the midst of increasing troubles with Republicans, he received a letter from Thomas Jefferson. As president of the American Philosophical Society at this time, Jefferson exhibited enthusiasm for all things scientific, which included any type of knowledge systematically acquired. But, ironically, he learned of Dunbar because of the Virginian's interest in horses, not science.

In June 1798, Jefferson sent a letter to Philip Nolan, whom he believed was in Kentucky at the time. Jefferson wished to know about reports of large herds of wild horses which were said to be roaming areas west of the Mississippi. He had heard that Nolan was someone who could "give interesting information on this subject." Jefferson's letter fell into the hands of the New Orleans merchant, Daniel Clark, Jr., who was handling Nolan's affairs while the latter was in the Kingdom of New Mexico secretly acquiring horses. Clark promised to forward Jefferson's letter, but he also proposed that if Jefferson wished to have more information about the lower Mississippi River Valley then he should consult Dunbar.²⁷

When Jefferson learned that Dunbar was systematically collecting information on Indian vocabularies and sign language, he initiated a correspondence with the Scot. Dunbar immediately responded to the vice-president's letter: "It is highly gratifying to be invited by a person of your high reputation in the republic of letters to contribute in conducting philosophical researches in this and the neighboring country," but, he coyly lamented, my "constant occupation as a planter since my residence in this country somewhat disqualified me for scientific pursuits." He then proceeded to relate information on Native sign language, improvements in astronomical instruments, meteorological data, and a host of other scientific concerns."

Jefferson was "greatly flattered with the prospect" of Dunbar's communications. "The vocabularies of the Western Indians are much desired," he wrote. Even more important, though, was Dunbar's work on Native American sign language. "Your letter," Jefferson wrote, "gives me the first information I have ever had of the language by signs used among the Indians." "I can entertain no doubt of [its] perfectability," Jefferson continued, "after what I have myself seen practiced by persons born deaf. A very particular account of it will be considered as a valuable acquisition."

As alluded to earlier, Jefferson owned an impressive collection of "the Indian tongues." "I have at present," he

informed Dunbar, "thirty tolerably full, among which the number radically different, is truly wonderful." He had considered reducing them all to one orthography, but wisely deferred, believing that such action would occasion "two sources of error instead of one." "I ... think it best," he wrote, "to keep them in the form of orthography in which they were taken, only noting whether [they] were English, French, German, or what."³ The uniformity offered by the sign language appealed to Jefferson's love of synthesis and unity. Dunbar, too, recognized the linguistic importance of common denominators in language, and even speculated that the common language of signs could be compared to communication in the "Chineses & other Eastern nations," which "have used or perhaps do yet use the same, & which they have reduced to an hieroglyphic form of writing."⁴

Dunbar's letters to Jefferson, when compared to his commissioner's report to Spain, demonstrates a subtle shift in the Scot's emphasis. In the former, he carefully detailed the plant life he observed, paying special attention to a plant's utility. Little of this appears in his letters to Jefferson. He does discuss practical matters, such as instrument improvements and climate, but in describing nature in the Old Southwest he simply writes that "The natural history of this country so far as I have had an opportunity of visiting it will be found to vary very little from that of the same latitude in the Atlantic States: The

forest trees are the same which generally grow from Virginia to Florida."²² "I believe," he concludes, "little is to be found which has escaped the researches of the indefatigable disciples of Linnaeus."²³ Dunbar focused here on items associated with what is now called pure science--discovery for its own sake. He had witnessed William Bartram's enthusiasm over the vegetable kingdom some 25 years earlier and he knew that others had followed Bartram to West Florida; perhaps he believed that Bartram-like efforts had exhausted the area's supply of unknown herbage and he did not wish to bother Jefferson with the mundane.

Jefferson's response to Dunbar's flow of information indicates the likemindedness of the pair, as well as Jefferson's role in moving Dunbar into America's scientific mainstream. "I perused according to your permission," Jefferson wrote, "that containing remarks on the line of demarcation." Furthermore, he added, "the papers addressed to me, I took the liberty of communicating to the Philosophical Society."²⁴

Jefferson not only forwarded Dunbar's work to the larger scientific community, he let Dunbar know what he considered to be important information. The sign language and Native American vocabularies were new and interesting, while Dunbar's sighting of the circular rainbow, although engaging, lacked such novelty. "I live in a situation which has given me an opportunity of seeing more than the

semicircle often.... I have twice seen bows formed by the moon."³³

Jefferson does not comment on Dunbar's disquisition on rainbow theories, and although the Virginian's mention of the rainbow indicates that he too found them objects worthy of notice, their accessibility meant they could be studied in most places. Dunbar was valuable because of his residence in the Natchez District and because of his intellectual rigor: "Philosophical vedette [sentries] at the distance of one thousand miles, and on the verge of terra incognito of our continent, is precious to us here," Jefferson informed him.³⁴ Jefferson hoped that Dunbar would continue to supply his insights, in spite of the fact, as Jefferson confessed, "I have never been a very punctual correspondent and it is possible that new duties may make me less so." The new duties included the presidency of the United States.

Neither Jefferson nor Dunbar could spend all or even most of their time investigating nature. The same was true with Sargent. As governor, however, some of the office's practical concerns involved scientific matters, as indicated by documents he supplied the New Orleans physician, Robert Dow, on the efficacy of "Yellow Bark" on some of the area's fevers.

Sargent also shared Dunbar's interest in Native American languages, although in more of a pragmatic vein: tribes in the territory were becoming increasingly hostile. When Sargent needed to communicate with various Indian leaders, he relied on a man named Juan Bautista, or Cezar as he was called. Little is known of this elderly slave, who was chiefly valued as an interpreter. Sargent had been renting Cezar from John Minor, the brother of Cezar's owner, for the past year, but Minor and Sargent had failed to agree on a monthly fee for Cezar's services. Minor informed the governor in the spring of 1800 that he had a chance to sell Cezar to Philip Nolan and wished to know if Sargent wanted the interpreter for another year at a rate of \$30 month--Sargent exploded. Although Sargent desperately needed Cezar, who could also help decipher languages for scientific purposes, he thought the amount exorbitant and the two men exchanged a flurry of letters. Minor quickly sold Cezar, asked Sargent to deliver him to Mr. Nolan, and presented Sargent with a bill totalling \$525 for Cezar's assistance." Sargent's star was setting.

For those believing in omens, a sign appeared in the spring of 1800, a portent for Sargent's fortunes and the destiny of science in the Natchez District. On the evening of April 5th, the same day that Minor informed Sargent of Cezar's sale, a large "phenomenon" was seen at Baton Rouge. "It appeared to be about 200 yards above the surface of the

Earth," Dunbar later reported, "wholly luminous, but not emitting sparks."

In passing, a considerable degree of heat was felt, but no electric sensation. Immediately after it disappeared in the North East, a violent rushing noise was heard as if the Phenomenon was bearing down the forest before it, and in a few seconds a tremendous crash was heard similar to that of the largest piece of ordnance.

Being ill at the time, Dunbar did not see the meteor first hand, but his care in obtaining details of the event and then relaying these to Jefferson reveals his interest in the object. A search of the place where the burning body fell revealed "that a considerable portion of the surface of the earth was found broken up, and every vegetable body burned or greatly scorched."

Dunbar's fortune was rising, and April also brought some welcome news from Ellicott. He informed Dunbar that the boundary between the U. S. and Spain was finally complete. He then added, "You are doubtless before this time informed of your being elected a member of the American Philosophical Society, if you do justice to your own abilities, and observations, you will do credit to the Society by your communications." Dunbar's devotion to science was now officially acknowledged by the country's most prestigious body of natural philosophers.

However, the meteorite and elevation to society membership provided but a slight diversion from the growing rancor on the political front and Dunbar began to feel the

fiery brands of Republican accusations. Sargent had issued a proclamation to hold elections in July. Shortly beforehand, Dunbar wrote the governor about a letter from Anthony Hutchins, in which Hutchins had evidently slandered Dunbar. Dunbar informed Sargent that the letter ought to be published but that he would stand above the accusations and "not write any Comment," believing "the effect would be contrary to what some persons might expect." Dunbar reasoned that "the most commodious form in which this letter can be ushered into public view would be as coming directly from the offended person."⁴⁰ This letter and the "present popular temper" convinced Dunbar not to offer himself for the upcoming election for the Territorial House of Representatives; he hoped that by

keeping out of [Sargent's] Chamber of Representatives, to do some good hereafter by moderating the temper of the people, which I could never affect if it appeared that I was much concerned as a party man: the time may arrive when the people will listen to a little reason."

Dunbar's reactions to the political invective revealed how he differed from other planters. He disliked the acrimony of local politics and he abhorred the code duello, making pointed references to the practice in a charge he delivered on September 4, 1800, to a grand jury for the Court of Quarter Sessions.

On the subject of offences I find myself impelled to animadvert upon a crime of a heinous nature, which is too often resorted to upon very slight and trivial occasions; I mean the practice of duellin, where both parties meet avowedly with an intent to murder,

presumptuously arrogating to themselves the right to wanton [sic] with their own lives and those of their fellow creatures, in direct contradiction to the laws both of God and man."

Where others preached divisiveness, Dunbar extolled the need for unity: "It is a certain truth that the interests of the citizens of this territory when properly understood are one and the same, and ought to bind us to each other in a firm bond of union."⁴¹ He blamed factionalism for the problems facing the territory, and he caustically derided partisanship: "It is grievous ... when the daemon of party spirit stalks over the land. It will be always found to originate with men of despicable talents, who despair by other means of raising themselves into popular estimation."⁴²

Less than three weeks after delivering this address, Dunbar had had enough. He resigned from the Court of Quarter Sessions, informing Sargent that "in the existing circumstances of this Country there is no object which presents any compensation for this transgression against our natural liberties." Dunbar tired of the constant bickering and apprised Sargent that "I am so ardent in the pursuit of peace, that I studiously avoid contests with all men, but it appears, that a maxim which ought not to be tolerated but in a time of civil war, has at all times its votaries in this Country; viz 'he who is not for us is against us.'" Sadly, Dunbar concluded, "the most peaceful demeanor, and the most

circumspect conduct are no protection against slander and detraction."

Dunbar's letter indicates that Sargent's ouster was set. Although Sargent had favored some of the wealthiest men in the area, such as Daniel Clark, Sr., Stephen Minor, Dunbar, and John Girault, and had subsequently enjoyed influential support, Republican gains in the July elections were the warning thunder of the Republican torrent which would soon follow."

In March, 1801, shortly after Jefferson's election by the House of Representatives, Sargent was out. The ex-governor, weary of politics, retired to his estate in Natchez. He did not remain inactive, however, and if the coin determined prestige, Sargent threw the last dart--by 1812, personal tax rolls listed him as the wealthiest man in town, owning 11,802 acres and 342 slaves in Adams County."

Ironically, the eclipse of Sargent's administration coincided with the flowering of science in the Mississippi Territory. Dunbar, still the main propagator of science in the area, no longer had to dilute his attention with fortune or politics; he could now devote himself to nature.

If peace is the handmaiden of science, then scientific studies in the Mississippi Territory were poised to expand in 1801. Dunbar now enjoyed membership in the country's

leading scientific body and he corresponded with world leaders in science. Foreign intervention in the Mississippi Territory seemed unlikely, at present, and political antipathy waned with the Republican watershed. Although science assumed the trappings of organization during the next few years, actual scientific advances by the community remained unfulfilled, due in large part to a lack of cooperation.

Now that the presidency, the governor's seat, and the territorial legislature belonged to the Republicans, they moved to consolidate their gains. The Mississippi hotheads moved the capital from Federalist Natchez to Washington, a new hamlet some 12 miles to the east. Legislators then cleaved Pickering County into two new Republican-sounding counties: Jefferson and Claiborne. Republicans repealed Sargent's Codes and lined up for the spoils of victory. They were disappointed."

Jefferson, despite the example of Sargent, sought political reconciliation by appointing Federalists to government positions. Jefferson's gubernatorial designee for the Mississippi Territory, W. C. C. Claiborne, although a staunch Republican from Tennessee, followed Jefferson's suit and stuck official plums on outstretched Federalist thumbs. Some factions in the Republican ranks, represented in part by the Green-West clans, railed against such moderation and tried to steer more patronage and power their

way. The ensuing push and pull alienated many on both sides of the political fence--turmoil, again, dimmed, but did not douse, the spirit of science. As long as Jefferson was President, interest in science would be maintained.

Jefferson's appointee to the Mississippi Territory, William Charles Coles Claiborne (1775-1817), had risen with Republicanism's increasing fortune. A native Virginian, he became a lawyer and moved to Tennessee while in his early 20s.⁴⁹ He soon impressed Tennesseans with his intelligence and ambition and was asked to serve in the state's constitutional convention of 1796. The resulting document, rife with republican principles, gained Thomas Jefferson's notice.⁵⁰ When Andrew Jackson moved to the Senate in 1797, the 22-year old Claiborne filled Jackson's seat in the House of Representatives. There he provided Jefferson crucial support in the latter's one vote victory over Aaron Burr. Jefferson thought enough of the young man to send him into Mississippi's political maelstrom.⁵¹

Claiborne received Jefferson's appointment on July 10, 1801.⁵² Though still in his mid-twenties, Claiborne exuded confidence; he reached Natchez on November 23rd in high optimism. Handsome, highly moral, versed in frontier manners, even tempered, and wonderfully naive, Claiborne believed that his political expertise, combined with strategic support from Jefferson, would enable him to govern

the harsh political shoals which had proven fatal to Sargent's administration. His first month passed without major mishaps and in a January 8, 1802 letter to Secretary of State, James Madison, Claiborne sanguinely reported that "Political excitement has nearly disappeared." His optimism was ill founded; the following month he informed Madison that "The old factions still survive to some extent."³

Young Claiborne discovered that this factionalism, which he had attributed to Sargent's puritanical rigidity, arose from complicated alliances. Federalists and Republicans had squared off long before these political affiliations had meaning. Long-time residents had sworn oaths to Britain, to Spain, to the Colonies, to Spain again, and finally to the United States. Allegiance proved difficult to define in this border community, which was seemingly trapped in transition. Consequently, political maneuvering followed a peculiar logic: economics, social position, and business associations seemed less germane than did family ties and the pursuit of power.³⁴

Anyone who prospered throughout the wearying shifts in authority possessed intelligence and luck--Dunbar exhibited both. He provides a good example of someone who succeeded without extensive family ties, as seen in the Hutchins/Green/West clans, who was a member of the planter caste, yet at odds with many planter values, and who refused to support extremism, opting instead for moderation in an

immoderate world. When Sargent became increasingly mired in Republican maneuvering, Dunbar extricated himself by resigning. Most importantly, Dunbar's scientific skills endeared him to whoever sat in the governor's chair, as well as to those who appointed these governors, such as Jefferson.

Dunbar and Jefferson were like-minded children of the Enlightenment, separated by more than a thousand miles of wilderness. Although at home in the abstract philosophies of their time, both men exhibited enormous tenacity and creativity in solving problems. For example, the mountain of cotton leaving Natchez had led to new packing techniques. Dunbar had assisted in the development of square bales and though this considerably improved matters, he was not satisfied, deciding to maximize bale content by compressing the cotton with iron presses. He wrote Ross in Philadelphia and enclosed a plan for a screw press. Although his partner died before the press could be completed, Dunbar worked with Ross's son, Charles, to finish the task. When costs proved higher than expected, Dunbar investigated the market for cotton seed oil, hoping to offset expenses. When the press arrived and promptly broke due to faulty materials, Dunbar devised another way to make it operate."

But what made Dunbar and Jefferson extraordinary was their interest in less practical matters, while remaining

conscious of a larger context. Dunbar's sensitivity to the big picture is evident in many of his letters. Benjamin Barton, Sargent's old correspondent at the American Philosophical Society, had heard of Dunbar through Ellicott and had initiated a correspondence in March 1801. The Philadelphia botanist, who shamelessly requested information from others, inquired about quadrupeds in the area. Dunbar wrote back with a list of 31 animals, and commented on the absence, presence, or similarity of life in his land with those of other latitudes. He exhibited a broad awareness of differing environments' speciation, such as his observation that the one species of rabbit in the area "seems to hold a middle link of the chain between the British hare and wild hares."⁶

However, distinctions between utilitarian and theoretical pursuits would have perplexed Dunbar. Like Jefferson, Dunbar considered utility and theory harmonious activities--their mutual progress essential to the furtherance of science. If we accept Gerald Holton's argument that the Jeffersonian research program targeted areas of basic scientific ignorance and that such investigations would eventually address social problems, then Dunbar served both as director and as participant in this Jeffersonian synthesis.⁷ Dunbar believed, as did Jefferson, that science could improve social conditions; for

his part, Jefferson considered Dunbar ideally placed--in a land obscured by distance to further such an agenda.

Dunbar's view of how science should proceed can be seen in a March 21, 1802 letter to John Vaughan, Secretary of the American Philosophical Society. He wrote: "I envy you the happiness of being able to view the the [sic] complete skeleton of the mammoth ... It has always been my idea that it might turn out to be a variety of the Elephant." But Dunbar's main purpose in writing was to thank Vaughan for sending smallpox vaccines; Dunbar knew of "Dr Jenners discovery and [had] been anxious to procure some of the virus... having 6 children and being threatened with the small pox both from above and below.""

The pox had broken out in New Orleans in the early months of 1802. This lethal, disfiguring, and highly contagious disease inspired deep fear and Edward Jenner's vaccine, developed in 1796, was still largely unknown in the Old Southwest. Jefferson knew of Jenner's efforts but a viable vaccine eluded Americans until Benjamin Waterhouse, a Harvard College professor, successfully duplicated Jenner's work. Waterhouse wished to introduce his findings into the South but knew no physicians there. Being an admirer of Jefferson's, he sent the vice-president some vaccine, who then proceeded to inoculate his family and slaves in 1801. Jefferson forwarded inocula to Vaughan to help in

dissemination and this may have been the source of the vaccine sent to Dunbar."³

Evidently the vaccine was ineffective because in a May 1802 address to the territorial legislature, Claiborne described the seriousness of the problem: "The prevalence of the small pox at New Orleans," he wrote, has exposed "the territory to imminent danger of receiving the contagion." "Two attempts," Claiborne declared, "have been made to avail ourselves of the valuable discovery of medical science, the vaccine or cow pox, but I am sorry to inform you," he continued, "that the virus which was procured, not being genuine, or having lost its virtue from age, the first attempt failed of success, and it is yet doubtful whether the issue of the second will be more fortunate."⁴⁰ Yet, even with these setbacks, Vaughan and his network did not give up. One of his correspondents in Lexington, Kentucky, Samuel Brown, devised various ways to transport the cow pox virus and sent these directly to Dunbar and Dr. William Lattimore. Brown swore that he would "send a fresh supply by every post" until the cowpox had taken hold of the population. The repeated efforts worked and in October, Dunbar reported that the vaccination provided a "full and efficacious protection against that scourage [sic]." The benefits of science and of scientific organizations such as the American Philosophical Society were now apparent to Mississippians.⁴¹

Obviously, science, whether it consisted of mammoth molars or of foiling the pox, gave Dunbar collateral benefits; he had the ear and the respect of Republican leaders. Jefferson's deference was well and good but the president was not on the scene. Claiborne was, and Dunbar's scientific interests ingratiated him to the governor in numerous ways. Claiborne no doubt appreciated Dunbar's aid with the smallpox threat, but with the immediate crisis over, new, longer-term challenges faced the governor.

As a Jeffersonian, Claiborne believed that "Every government ... ought to direct its views to the advancement of literature, .. the very preservation of a republican government in its genuine purity depends upon a diffusion of knowledge among the body of society...." Claiborne proposed to advance literature and science in at least two ways: a "seminary of learning" which would become a "fruitful nursery of science and virtue," and a society of gentlemen devoted to the nurture and spread of scientific knowledge.⁴² Through the spread of knowledge, especially scientific knowledge, the republic could remain free. "A great Statesman has said," Claiborne declared to the legislators, "and the experience of all ages supports the position, 'that Science is the only agent which can hold tyranny and bigotry in check'."⁴³

Unfortunately, the citizens' interest in science proved inferior to their political devotion. The District's first organized effort to establish a seminary of learning "central to the population of the territory, fostered by the government, and placed under the direction of a well selected board of trustees," nearly died because of factional politics."

Claiborne doggedly continued his plan for moderation and those who were chosen for the board spanned the political spectrum." Immediately, several of those selected refused to serve. The nascent board met on January 3, 1803, with a bare quorum, and elected Claiborne president, Dunbar vice-president, Felix Hughes secretary, and Cato West treasurer. Ominously, West declined the position. Even with the refusals, board members exhibited little unanimity; with the first significant issue facing the board--choosing a site for the college--partisanship erupted. The Green-West cohort, unsuccessful in moving the territorial capital further into Republican land, to their seat in Greenville, now tried to locate the college there." Hard feelings surfaced and only through difficult negotiations was Washington chosen as the college's home. Raising money to start the college proved even more troublesome. Controversies over land and a lottery finally shattered the board--that body recessed, not to meet again for four years.

The intellectual society that Claiborne proposed fared better than the college since government funding was not an issue. On October 5, 1803 the House of the Territory directed two of its members, William Dunbar and Colonel John Girault, to address the governor's concern for "Agriculture, Literature and Science and to report by Bill or otherwise."⁶⁷ Three days later, on October 8, Dunbar submitted to the legislature a bill entitled "An act to incorporate the Mississippi Society for the Acquirement of usefull knowledge." Claiborne signed the bill on November 18, 1803.⁶⁸

Only days before its incorporation, on October 1, eleven men had met to adopt a constitution for the Mississippi Society for the Acquirement and Dissemination of Useful Knowledge.⁶⁹ Governor Claiborne chaired the meeting at the request of the participants and the constitution "as previously prepared by Isaac Briggs, W. C. C. Claiborne, William Dunbar, John Henderson, David Lattimore, John Girault, and Lewis Kerr..." was presented.⁷⁰ After proposing and adopting several amendments, the assembled body approved the charter. This document's preamble succinctly detailed these men's purpose. Society members pledged to advance "agriculture and other useful arts," "as much as may be in our power." They voiced their respect for successful societies in Europe and America but they lamented the distance which separated them from these fraternities.

The Mississippi men recognized that although many valuable discoveries had been made in the District, these advances were mostly accidental and had not been systematically analyzed. Firmly believing that "by science only can mankind attain any certain or perfect enjoyment of the munificence of nature," these gentlemen pledged to acquire and disseminate useful knowledge among their fellow citizens." Through such efforts, they believed that they would "smooth some of the paths which lead to true national wealth and individual comfort,.. in which the hand of labor is at the same time released from more than half of its toil": the latter objective is not usually associated with slave societies.⁷¹

The breadth of the Society's interests, its expansive definition of useful knowledge, can be gleaned from the duties outlined for the librarian/curator, John Girault. Girault, a Patriot and long-time resident of the area, was to "keep in good order ... all books, manuscripts, maps, draughts, drawings, paintings, engravings, papers, mathematical and other instruments and apparatus, specimens of natural productions of the animal, vegetable or fossil kingdom, antiques, coins, medals and all other ... things belonging to the Society."⁷² Any information that might enhance understanding, the Society considered important. That they elected seven officers, out of a pool of seventeen members, indicates their optimism for this group.⁷³

Unfortunately, the Society's minutes have been lost. In fact, few records exist which explain Society activities. The peculiar quietus which surrounds this group gains further significance with a quick look at the names pledged to its constitution. They include the political, judicial, social, and economic leaders of the territory. How a group with such a high concentration of territorial elites could leave so few clues as to its activity is confounding. The Reverend James Madison was even a member.⁷⁴

Since many Jefferson College trustees also belonged to the Society, political divisiveness may have disrupted the quarterly meetings. Politics seemed ever ready to cripple intellectual associations and a Republican perspective provides insights into the personal and political tensions among Society members.

As the Mississippi Society was being incorporated, Edward Turner of Kentucky, whom Jefferson had tapped as Register of the Land Office in Natchez, became the object of Federalist fury. Writing to his patron, Kentucky Senator, John C. Breckinridge, Turner recounted his arrival in Mississippi and the tactics employed by the Natchez elite to break his Republican ties: "My letters of introduction," Turner wrote, "were principally to the leading federalists of the Country, [Mississippi Territory] and my brother Henry, a merchant in Natchez, from whom I was to receive a

support until I could make the means of supporting myself, was in the opposition likewise." Henry exerted considerable pressure on his younger brother, and "numerous and powerful were the arguments & persuasions used by him to keep me from going with the Republicans; and I plainly saw that it was my interest as a lawyer to be a federalist, and I had no other way of making my bread, but by my profession."⁷⁵

Turner recorded that he stood steadfast against efforts to sway him from his republican convictions. He even introduced the possibility that a petition protesting his appointment was being circulated by members of the Mississippi Society, which he labelled a Federalist club. According to Turner, the Mississippi Society arose in response to the formation of The Mississippi Republican Society, the latter an avowed literary league, formed by Turner and others to promote Republican principles, disseminate political information among the people, and prepare the people for the impending change from territory to statehood.⁷⁶

The fact that most of the Mississippi Society's officers were Republicans weakens the argument that it was a Federalist enclave. Its president, Isaac Briggs, was Surveyor General of the lands south of Tennessee and a close friend of Jefferson's. Claiborne served as one of the two vice presidents--Dunbar was the other--and John Girault, another Republican, was Librarian/Curator. Briggs and

Dunbar both exhibited a deep interest in science and it seems more probable that "the cultivation of social harmony and the acquirement and dissemination of useful information in natural science, and primarily agriculture" as stated in the Society's charter, rather than Federalism, drove their interest in the group."

No matter the Society's purview, Turner expressed deep hatred for Claiborne, Dunbar, and Girault. In doing so he revealed his personal, if not his political, differences with each man, and offers some insights into the complex motivations which drove politics in the District. He began with Claiborne, whose Republicanism was beyond reproach. "Governor C.," Turner declared, "is a man of what the politicians call management, and he has lately discovered more than a friendly disposition towards two of the greatest opponants to my appointment: The one of them is M^r Dunbar, the other a Colo^d Girault." "Both of them," he informed Breckenridge, "are members of our Legislature;--the former, was elected as a federalist, by federalists; the latter as a republican, in a republican county...." Turner described Dunbar as a Briton whose main interest lay in land fraud and political power. He alluded to Dunbar's relationship to Jefferson but discounted that association as just so much political maneuvering on the part of the Scot: "Dunbar, as a philosopher," Turner wrote, "is well known to the President who has expressed a wish to Governor C. that he

(Dunbar) was a republican." Turner believed that Dunbar had learned of Jefferson's wish and was using it to "get Governor C. to believe that he is now in the support of the President's administration, this will be, to Governor C. sufficient evidence of Dunbar's republicanism." While it has become obvious that Dunbar and others recognized the value of political patronage on the frontier, Turner tried to represent Federalists as self-interested opportunists who would voice any opinion to gain what they wanted--a too extreme view of District politics.

Turner wrote even less kindly of Girault, calling the Colonel a turncoat Republican, "a genteel, sensible, cunning little fellow, upwards of 50 years of age, of not much learning or reading, except that he is acquainted with the Spanish and French languages, .. he is not a man of principle." Turner goes on to say that Girault "was elected about 15 months ago to our assembly, by imposing upon the ignorance of the people. He assured them that he was a republican; but since elected his conduct has been uniformly against them."³

Turner concluded his letter by denouncing Dunbar and Girault as "deep designing men, of plausible manners, very capable of imposing upon those who are fond of flattery, and ... at the helm of the federal party in this Territory...." But of greater concern to Turner was the circumstance, "astonishing indeed," that Dunbar and Girault "have so far

imposed upon Governor C. that he is now puffing them off as good republicans! as you will no doubt have heard before this letter will reach you; and they have accomplished this by flattery."¹ Evidently, Turner was worried--Dunbar and Girault could provide their own political heat.

Turner's character assessment did give substance to Dunbar's conservatism and aristocratic suspicion of the masses. But it also reveals an entrenched "siege mentality," as evident in Turner's belief that anyone who opposed him was no friend of Republicanism. This attitude lends credence to historian Robert Haynes' argument that blood lines and the quest for office fueled territorial rivalries."

The Mississippi Society tried to transcend these differences and elected Abner Green to its ranks on November 5, 1803, followed by Edward Turner's selection the next October. Society members desired "the cultivation of social harmony," in a land riven by self interest. Dunbar, Briggs, and other Society officials knew the importance of fraternity in such a group, but ego proved too strong and science in the Natchez District was unable to draw on the spirit of cooperation. Subsequently, scientific efforts in the District operated at only the most superficial level of organization--the nature of science in the area continued along the path of individualism and solo discoveries. As a result, votaries of science in the lower Mississippi River

Valley frequently did not know of each other's efforts, as they labored for the advancement and diffusion of knowledge."

ENDNOTES

1. "Census taken at Natchez in Jan'y 1796," in Winthrop Sargent Collection, Ohio Historical Society, Box 3, Folder 4; Reel 3, Frame 511. Arthur P. Whitaker, The Mississippi Question, 1795-1803: A Study in Trade, Politics and Diplomacy (Gloucester, Mass.: 1962), 276, note 24. Disparities between population estimates may be the result of different census methods used by Spain and the United States. See also Charles D. Lowery, "The Great Migration to the Mississippi Territory, 1798-1819," Journal of Mississippi History 30 (August 1968): 178-92.
2. Second Census of the United States, 83. "An act," Adopted on April 7, 1798. Section Three of the Act which established the Mississippi Territory, delineated the boundaries: "that tract of country bounded on the west by the Mississippi: on the north by a line to be drawn due east from the mouth of the Yazous to the Chatahauchee river; on the east by the river Chatahauchee; and on the south by the thirty-first degree of north latitude, shall be and herby is constituted one District to be called the Mississippi Territory." Winthrop Sargent Collection, Ohio Historical Society, Box 3, Folder 3; Reel 3, Frame 498.
3. Dumas Malone, ed. "Sargent," Dictionary of American Biography 8 (New York: Charles Scribner's Sons, 1935), 368-69.
4. Ibid, 369.
5. Daniel J. Boorstin, The Americans: The Colonial Experience (New York: Random House, 1958), 164.
6. Winthrop Sargent, "A Letter from Colonel Winthrop Sargent to Dr. Benjamin Smith Barton, Accompanying Drawings and some Account of Certain Articles, Which were Taken Out of an Ancient Tumulus, or Grve, in the Western-Country," Transactions of the American Philosophical Society, 4 (1799): 178.
7. Winthrop Sargent Collection, OHS, Box 3, Folder 3; Reel 3, Frame 498. See also James, Antebellum Natchez, 75.

8. Dunbar had informed Ross back in August 1797 that President Adams' address to Congress had not eased confusion over land titles. "Extracts," 29-30.

9. Winthrop Sargent Collection, OHS, Box 3, Folder 3; Reel 3, Frames 498-99.

10. Robert V. Haynes, "Law Enforcement in Frontier Mississippi." Journal of Mississippi History 22 (January 1960): 28.

11. James, Antebellum Natchez, 76; Winthrop Sargent Collection, OHS, Box 1, Folder 18; Reel 2, Frames 16-18.

12. Robert V. Haynes, "The Revolution of 1800 in Mississippi." Journal of Mississippi History 19 (October 1957): 236. Sargent's difficulty in communicating with the seat of government highlights the problems that all groups in the Territory encountered when corresponding with the cities of the East. Historical Atlas of the United States New York: Henry Holt & Co., 1944, 79. See Winthrop Sargent Collection, OHS, Reel 2, Frame 463 for a record of dates showing when letters were mailed and when they were received.

13. Barton to Sargent, Winthrop Sargent Collection, OHS, Box 2, Folder 1; Reel 2, Frame 251.

14. Quoted in John C. Greene, American Science in the Age of Jefferson (Ames, Iowa: The Iowa State University Press, 1984), 348.

15. Barton to Sargent, Winthrop Sargent Collection, OHS, Box 2, Folder 1; Reel 2, Frame 251.

16. Barton to Sargent, Winthrop Sargent Collection, OHS, Box 2, Folder 1; Reel 2, Frames 251-52; Box 3, Folder 9, Reel 3, Frames 784-800. Barton frequently asked others to send him specimens. See Greene, American Science, 257.

17. Robert V. Haynes claims that Sargent abraded Southern gentility with his personality. See Haynes "Revolution," 286. Characterizations of Sargent closely resemble popular perceptions of the chief executive, John Adam's: "a crusty New Englander," who "though learned and upright... was a tactless and prickly intellectual aristocrat, with no appeal to the masses and with no desire to cultivate any." Quoted in Thomas A. Bailey and David M. Kennedy, The American Pageant: A History of the Republic vol. 1, 6th ed. (Lexington, Mass.: D.C. Heath and Company, 1979), 156.

18. In 1797, relations between Ellicott and Hutchins had deteriorated to a point that it was rumored that Ellicott intended Hutchins to be killed. James, Antebellum Natchez, 73. See also (Haynes, "Revolution," 240). Hutchins' son, Henry Samuel Hutchins, was appointed as an officer in the militia but his father forced him to resign. Daniel Clark, Sr. to W. C. C. Claiborne, Winthrop Sargent Collection, OHS, Box 2, Folder 10; Reel 3, Frames 84-85. Abner Green had entrenched family ties by marrying a daughter of Anthony Hutchins'. Green later served as territorial treasurer. Abner's brother, Thomas M., served as a delegate to Congress for the Territory while the brothers' brother-in-law, Cato West, served as secretary of the Mississippi Territory as well as acting governor. Rowland, Mississippi, 303.

19. Dunbar, Life, 99-101. See Dunbar to Sargent, Sargent Papers, OHS, Box 2, Folder 2; Reel 2, Frames 303-06. During this period, the Court of General Quarter Sessions and the Court of Common Pleas oversaw municipal and county affairs. See James' useful recapitulation of the area government during Sargent's years, Antebellum Natchez, 77-78.

20. Winthrop Sargent Collection, OHS, Box 2, Folders 3,; Reel 2, Frame 366.

21. Winthrop Sargent Collection, OHS, Box 2, Folders 3, 4, & 5; Reel 2, Frames 366, 397-98, 485-90. Mississippi Republicans paid but slight attention to the Federalist's Sedition Act of 1798, which had been passed to punish those who falsely defamed government officials.

22. "Extracts," 45.

23. Ibid, 53.

24. The scope of Dunbar's wealth becomes apparent when one considers that he was willing to pay 100 pounds -- half of Herschel's yearly salary as astronomer to the king -- to purchase a new telescope. "Extracts," 53.

25. See Stephen Toulmin and June Goodfield, The Fabric of the Heavens: The Development of Astronomy and Dynamics (New York: Harper Torchbooks, 1961), 254. Uranus's puzzle was solved in the 1840s, using Newtonian mechanics, by the discovery of a force affecting Uranus which explained the planet's deviations, the planet Neptune.

26. "Extracts," 55. Herschel had also been preoccupied with measuring binary stars which also required exacting measurements. Herschel, q.v. Encyclopaedia Britannica, 9th ed., 767.

27. Jefferson to Nolan, June 24, 1798. TJP-UVA, vol. 104, f. 17814, reel 35. Clark to Jefferson, February 12, 1799, TJP-UVA, vol. 105, ff. 17971-17972, reel 35.

28. "Extracts," 58-59. This letter of Dunbar's to Jefferson does not appear in the Jefferson papers at the Library of Congress and was possibly not received by the President. A note by B. L. C. Wailes, who is believed to be the compiler of the "Extracts," appears in the middle of Dunbar's first letter to Jefferson: "[T]he balance of this long letter and of others to Mr Jefferson & some English savans relates to various matters such as to vocabularies of languages of the South Western Indian tribes -- to a language of signs in use among them -- to the use of a telescopic sight in fire arms -- improvements in astronomical instruments &c &c which however interesting in themselves, are not particularly connected with the early history of the Country its resources and agriculture & no further extract will be made from them." This comment by another enthusiast of science, made some fifty years later, succinctly describes a contributing factor to the ignorance of scientific activity in the Old Southwest.

29. Dunbar, Life, 208.

30. Ibid, 112.

31. Ibid, 121.

32. "Extracts," 59-60.

33. Ibid, 60.

34. Dunbar, Life, 111.

35. Ibid, 112.

36. Ibid.

37. Minor and Sargent exchanged numerous letters concerning Cezar. See the Sargent Collection, OHS, Box 2, Folder 8; Reel 2, Frames 680, 685, 687-88, 691, 722-24, 726. Sargent's letters are difficult to read. Evidently, Sargent did deliver Cezar to Nolan because Juan Bautista was captured by the Spanish on March 21, 1801, the day Spanish forces surrounded Nolan and his men who were held up in a crude fort 150 miles west of Nacogdoches. Noel M. Loomis, "Philip Nolan's Entry into Texas in 1800," in The Spanish in the Mississippi Valley 1762-1804, ed. John Francis McDermott (Urbana, Ill.: University of Illinois Press, 1974), 130. Sargent's concern over having an interpreter arose in part to his particular worry over the Choctaws: "[T]here seems

to have been a growing insolence in the Choctaw Indians," he wrote, "which I apprehend will terminate in hostility." Sargent Collection, OHS, Box 2, Folder 9; Reel 3, Frame 8.

38. Dunbar, Life, 104-05. The original manuscript describing the meteor contains a drawing. Dunbar Papers, MDAH, Z114 Box 1, Folder 2. Part of the original is missing but the full account, along with some extra information, appeared in the Transactions of the American Philosophical Society 6, (1804): 25. Interest in the meteorite had spread before publication of the Transactions article. In 1803 Dunbar informed an unknown correspondent that he would investigate further whether or not the meteorite had been found. Life, 121.

39. Dunbar, Life, 105-06. Most authors agree that Jefferson nominated Dunbar for membership in the APS. Franklin Riley, "Sir William Dunbar," 95; Dungan, "Sir' William Dunbar," 220; DeRosier, "William Dunbar," 168. However, in a letter to Jefferson, Andrew Ellicott claims that he was the one who nominated Dunbar while working on the 31st parallel. It is possible that Dunbar was nominated by both men. Ellicott to Jefferson, January 18, 1801, TJP-UVA, vol. 109, f.18710, reel 37.

40. Dunbar to Sargent, Winthrop Sargent Collection, OHS, Box 2, Folder 10; Reel 3, Frame 68.

41. Ibid, Reel 3, Frame 69. Dunbar received 56 votes in that July election, well short of Anthony Hutchins' 104 votes and the three other Hutchins associates who topped the polling. See Sargent Collection, OHS, Box 3, Folder 7; Reel 3, Frame 666.

42. Sargent Papers, OHS, Box 3, Folder 7; Reel 3 Frame 568. This address also appears in Dunbar, Life, 106-111.

43. Dunbar, Life, 109.

44. Ibid, 109.

45. Dunbar to Sargent, Sargent Papers, OHS, Box 3, Folder 11; Reel 3, Frames 169-70. Dunbar did not withdraw entirely from public life; he shrewdly informed Sargent that he would continue his duty as Inspector of Cotton Gins.

46. James, Antebellum Natchez, 101. On the eve of Sargent's departure, on March 28, 1801, forty of the area's leading citizens, including Bernard Lintot, Seth Lewis, John Steele, Lyman Harding, Abijah Hunt, John Minor, John Henderson, and Israel Trask, signed a declaration of appreciation for Sargent's service. Winthrop Sargent Collection, OHS, Box 2,

Folder 13; Reel 3, Frame 271. Jefferson chose not to reappoint Sargent as Territorial governor.

47. James, Antebellum Natchez, 150.

48. James has shown that Federalists in territorial Natchez controlled the economy, not the government. Since many creditors were Federalists, Republican farmers considered Natchez a Federalist town. See D. Clayton James, "Municipal Government in Territorial Natchez," Journal of Mississippi History 27 (May 1965): 166.

49. Although Claiborne died relatively young, a common occurrence for those living on the edge of civilization, he led an active political life and at least seventeen different manuscript collections house materials pertaining to him and his administrations. The bulk of primary sources are situated in the New Orleans Public Library, Tulane University, Louisiana State University, the National Archives, MDAH, and the Massachusetts Historical Society. Numerous published sources dealing with Claiborne's career also exist. See bibliography.

50. Joseph T. Hatfield, "Governor William Charles Cole Claiborne, Indians, and Outlaws in Frontier Mississippi, 1801-1803," Journal of Mississippi History 27 (Nov 1965) 323; Claiborne, Mississippi, 250.

51. A "Ripley's Believe It or Not" cartoon asserts that Claiborne was elected two times to Congress before he was of constitutional age and that he cast the vote that elected Jefferson over Aaron Burr. February 10, 1942, Clarion-Ledger, Jackson, Mississippi. The Claibornes were a curse to Burr. In 1806 Burr was captured and tried for treason within shouting distance of the Mississippi Territory's legislative assembly -- his captor was W. C. C. Claiborne's cousin, General Ferdinand Leigh Claiborne.

52. Claiborne, Mississippi, 220; Hatfield, "Governor Claiborne," C323-350. Jefferson actually issued Claiborne's appointment on May 25, 1801.

53. See DAB, 1930, 115-16; Claiborne, Mississippi, 223-24.

54. William B. Hamilton's "Politics in the Mississippi Territory," Huntington Library Quarterly 11 (May 1948): 277-91. See also Sydnor, Gentleman, 24-27 and James, "Municipal Government," 148-67.

55. "Extracts," 60-61, 63, 68. The compiler of the Extracts claims that the press cost Dunbar about \$1,000.

56. Ibid, 64-65.
57. Gerald Holton, Science and Anti-Science (Cambridge, Mass.: Harvard University Press, 1993), 115.
58. "Extracts," 69-70.
59. Silvio A. Bedini, Thomas Jefferson: Statesman of Science (New York: Macmillan, 1990), 310-12.
60. W. C. C. Claiborne, MDAH, Executive Journal, Miscellaneous Legislative Papers, RG 2, vol. 11.
61. Samuel Brown to John Vaughan, June 10, 1802, A.L.S. American Philosophical Society Archives. Brown thanks Vaughan for introducing him to Dunbar. Dunbar, Life, 117.
62. W. C. C. Claiborne, MDAH, Executive Journal, Miscellaneous Legislative Paper, April 5, 1802 RG 2, vol. 11.
63. William D. McCain, ed. Journals of the General Assembly of the Mississippi Territory: Journal of the House of Representatives Second General Assembly, Second Session October 3 - November 19, 1803 (Hattiesburg, Miss.: The Book Farm, 1940), 8.
64. W. C. C. Claiborne, MDAH, Executive Journal, Miscellaneous Legislative Paper, April 5, 1802, RG 2, vol. 11.
65. For a history of Jefferson College see William T. Blain, Education in the Old Southwest: A History of Jefferson College Washington, Mississippi (Washington, Miss.: Friends of Jefferson College, 1976).
66. Minutes of the Trustees... Vol 1, p. 1. Jefferson College Papers, MDAH Box 1. Those in attendance at the first meeting, which was held in Washington, were Claiborne, Dunbar, John Ellis, Anthony Hutchins, David Lattimore, Sutton Banks, Alexander Montgomery, Daniel Burnet, David Kerr, Drury? W. Breazeale, Abner Green, and Cato West. Blain, Education, 4-5.
67. McCain, Journal of the House of Representatives, 17.
68. Ibid, 49, 67. Many of the charter members of the Society were also trustees for the college. Sydnor, Wailes, 125-26. Going by Sydnor's list of "charter members," presumably those nineteen men named in Toulmin's digest, only the names of W. C. C. Claiborne, Dunbar, Benjamin Farar, John Girault, David Lattimore, and John Ellis also

appear in the year 1803 as being Trustees of Jefferson College. See p. 411. If we compare the thirty-seven names that appear in the Society's constitution, which includes the nineteen members Sydnor mentions, to the 1803 list of Trustees, we can add the names of Abner Green and Joseph Pannill. Other cross overs occur later, such as Adam Tooley. Contrary to Sydnor's claim, I can find no evidence of "Briggs," presumably Isaac, not Joseph, Briggs, ever becoming a trustee of Jefferson College. A large lapse does appear in the trustees' minutes from 1805-1810, but it appears that the trustees were inactive during this period. Blain attributes the lapse to the board not meeting due to differences of opinion. Farar, elected to the J. C. Board of Trustees in 1803, refused to serve. See Minutes of the Board, Box 1, vol. 1, 22. Cato West proved to be an influential J. C. board member. See Minutes, 46, 53, 56.

69. See Constitution of the Mississippi Society... City of Washington [Miss.]: Printed by Samuel Harrison Smith, 1804, p. 3.

70. Ibid.

71. Constitution of the Mississippi Society for the Acquisition and Dissemination of Useful Knowledge (Washington, Miss.: Printed by Samuel Harrison Smith, 1804), 4-5. MDAH. The Mississippi Society's purpose is echoed in James Smithson's will, 1829, in which he stated that his bequest of \$500,000 to the United States be used to create the Smithsonian Institution, "an establishment for the increase & diffusion of Knowledge among men."

72. Ibid, 11-12.

73. The constitution lists seventeen members on page eight. The act instituting the society, passed on November 18, records nineteen members. The constitution lacks the names of John Ellis and William Connor. See Acts passed by the Second General Assembly, 409. The constitution for the Society called for an annual dues, not to exceed six dollars, and to be made in four equal installments. The drafters of the constitution obviously did not want money to prove a bar to membership and it indicates that they were not trying to form a club of well-to-do citizens disguised as a scientific society, as was common during this period. However, the larger membership quickly added a ten dollar admission fee for new members, in addition to the annual six dollar contribution. Constitution, 9.

74. See Constitution, 8, 13 for a list of its members. Written on the outside cover of the MDAH copy of this constitution is "Proceedings of a Meeting of a number of

citizens of Washington County in the Mississippi Territory January 25, 1803." Toulmin's Digest records that the act to incorporate the society passed the Territorial Legislature on 8 November 1803, p. 409. The act gained the governor's approval on 18 November 1803. See Acts passed by the second General Assembly, 17. The constitution called for quarterly meetings to be held within Adams County on the first Saturday in October, January, April, and July. Members elected officers during the October meeting. Spanish rule had discouraged most organized religious groups which may explain the lack of clergy in the group. Religious leaders may have joined at a later time though there is no evidence to say either way. Society minutes, correspondence, resolutions, and other documents that would show the workings of the circle are missing. A rare announcement for the group appeared in the Washington Republican, June 16, 1813 indicating its continued activity. Some of the secondary sources that discuss the association, albeit briefly, include Sydnor, A Gentleman, 125-26; William B. Hamilton, "The Southwestern Frontier, 1795-1817," Journal of Southern History 10 (November 1944): 396-97; James, Antebellum Natchez, 231-32; and Robert V. Haynes, "The Formation of the Territory," in A History of Mississippi, ed. Richard Aubrey McLemore (Hattiesburg: University & College Press of Mississippi, 1973), 197-98. Article Three of the Society's constitution allowed for those who could contribute useful communications but not attend Society meetings, such as Madison, to become "Corresponding Members," which included all privileges save voting or balloting.

75. Jefferson had instructed James Madison to appoint Turner to the land office at Natchez in March 1803. See Jefferson's letter to Albert Gallatin in Donald Jackson, ed. Letters of the Lewis and Clark Expedition, with Related Documents 1783-1854 (Urbana, Ill.: University of Illinois Press, 1962), 31-32. Edward Turner to John C. Breckinridge, November 2, 1803 in Carter Papers, V, 265. Turner does not mention here that at least one of his letters of introduction was directed to a staunch Republican: "I brought a letter of introduction from Gen. Green Clay, of Kentucky, to his [Clay's] uncle, Col. Thomas Green. This led to my intimacy with the Greens, Hutchins, Wests, and their extensive connections, and to my marriage with the daughter of Col. West." Claiborne, Mississippi, 228. Cato West was a leader of the West-Green faction. Turner's allegiance to these Republicans indicates that the political bonds with his Federalist brother ran thinner than his loyalties to his Republican in-laws. We must therefore be careful when referring to family loyalties when explaining political alignments.

76. Turner to Breckinridge, November 2, 1803, Carter Papers, V 266. Haynes endorses Turner's belief that Federalism gave birth to the Mississippi Society. See Haynes, "The Formation of the Territory," pp. 197-98, especially note 81. Sydnor also considers this reactionary beginning as probable. Sydnor, Wailes, 26. Both Sydnor and Haynes cite the same evidence for the claim, Turner's April 6, 1859 letter to B. L. C. Wailes. Turner's assertion that the Republican Society was an "association formed in Jefferson county for the acquisition and dissemination of useful knowledge" could lead one to confuse this Society with the Mississippi Society. In Claiborne, Mississippi, 229.

77. Haynes claims that Dunbar came out of retirement to lead a revival of Federalism in 1802. See Haynes, "Formation," 197. The second article of the Constitution provided for a President, at least one Vice-President (The society began with two vice presidents) a Treasurer and a Secretary, all to serve for one year, and, according to the fourth article, "elected by ballot, and a concurrence of a majority of the members present..." (ibid) During the October 1 meeting members elected a president, two vice-presidents, a treasurer, and a secretary/librarian. John Henderson and Lewis Kerr, respectively, filled the latter two positions. One week later, evidently thinking that the job of secretary/librarian was too large for one man, the Society elected Joseph Briggs to serve as assistant secretary and John Girault to fill the role of librarian/curator. Society by-laws four through nine outline the duties of the various offices. Constitution, 6.

78. Carter Papers V, 274.

79. Ibid, 274-75.

80. Ibid, 274.

81. Ibid.

82. Robert V. Haynes, "The Formation of the Territory," in A History of Mississippi, ed. Richard Aubrey McLemore (Hattiesburg: University & College Press of Mississippi, 1973), 197-98.

83. "Mississippi Herald & Gazette," October 26, 1804, 1. Constitution, 6. Prospective members had to be balloted for, and then approved at an ensuing meeting by three-fourths of the members present. By-law number three stipulated that at least eight members be present for the balloting and the vote. Page 10.

CHAPTER SEVEN
THE LOUISIANA PURCHASE: EXPLORING RIVERS AND BOILING SPRINGS

Life on the edge of the United States made William Dunbar a valued resource to Thomas Jefferson. The common exchange of daily life for him--his contact with Indian tribes, his forays into the canebrakes, his proximity to Spanish territory--was decidedly uncommon for those who resided in Washington City or Philadelphia. Unlike most residents in the lower Mississippi Valley, Dunbar had amassed a fund of knowledge that only a well-educated, scientifically trained gentleman could gather. His long years in the Old Southwest had instilled in him a sensitivity to southern nature that visitors to the area lacked; his perception of life around him influenced his views, his analyses, and the nature of science.

With his growing fame, arising in part from his contributions to the American Philosophical Society and the increased attention focused on the Old Southwest, Dunbar became an esteemed correspondent with naturalists throughout the country. Unfortunately, his efforts to launch local scientific institutions were handicapped by local politics. As a result, Dunbar looked elsewhere for scientifically

inclined colleagues, such as Thomas Jefferson, with whom he could exchange theories and specimens.

Dunbar sent most of his scientific treatises to Jefferson. After the president finished reading them, he might pen a response to Dunbar and then he would transmit them to other members of the APS. In 1803 Dunbar sent Jefferson a natural history of the Natchez District, three years of meteorological data, notes on alluvial plains, and a hydrostatic analysis of the Mississippi River. Jefferson would comment on Dunbar's analyses, such as the time he informed Dunbar that the latter's hydrostatical assumptions varied with the theories of respected mathematicians' work on river motion. Undeterred, Dunbar replied that personal observations convinced him that the theories of Guglielmini and others were unsupported by "true philosophy & ... hydrostatual laws."¹ Dunbar was finally in his element of testing theories, applying mathematics to phenomena, and debating theoretical concerns with those conversant with the literature.

But this science-minded Scot did not restrict himself to theoretical concerns alone. He did not hesitate to alert Jefferson to local political quarrels that Dunbar felt retarded the advance of science. He voiced his concern to Jefferson over a resolution recently submitted to the Congress designed to strip thirty acres of land from the

aptly named Jefferson College and give it to Natchez. "If those 30 acres are taken away," Dunbar wrote, "the poor college will be absolutely nipped in the bud."²

The opening of the nineteenth century initiated the most productive years of Dunbar's scientific life. His successful plantations and swelling accounts provided him the time and the money to study the natural order around him. He busily accumulated data on geographical coordinates, meteorology, Indian sign language, and numerous other subjects. But the transformation of the geography of the United States in 1803 suddenly focused his attention on lands west of the Mississippi, pulling him into the "Corps of Discovery."³ At an age when most men would be considering the ease of a prosperous retirement, Dunbar was planning to cross the Mississippi River for an exploration of the unknown.

Jefferson's election to the presidency had coincided with rumors of an impending Spanish cession of American lands. While Federalists and Republicans in the Natchez District quarreled, secret negotiations transformed the nearby border as the "Himno Nacional" gave way to "La Marseillaise." Napoleon had convinced Spain's regent to return to France the isle of New Orleans, along with the vast lands of Louisiana; France ruled again what she had vacated 27 years before.

The secrecy involving the transfer was so complete that few Americans in the Old Southwest knew of it until 1802. Rumors concerning Louisiana rule had been circulating for months--in July of that year, Dunbar had informed his merchant house in New York, "you will be surprised ... that we still remain in the dark respecting the future fate of our neighbouring province, .. we cannot learn that any official intelligence on the subject has ever been communicated to the Govr. of the province by the Court of Madrid." One thing of which Dunbar was certain was that the "future proximity of a govt. forming a member of Our/soi distant .. Sister republic, presents not the most pleasing ideas to the reflecting part of our Citizens." "The Spaniards," he wrote, "stand some what in awe of us," a view not shared by the expansionist French. They could, at a minimum, jeopardize trade on the Mississippi River--a move that would spell financial ruin for many of the area's residents.'

In October 1802, these fears began to materialize. The Spanish governor, most likely in accordance with French wishes, suspended Americans' right of deposit at New Orleans. These rights, crucial to the United States' western economy, had been guaranteed in 1795 and their suspension fueled outrage and confusion. French possession of Louisiana was confirmed two months later. In January, 1803, Dunbar reported that he had seen a copy of the orders

of the Court of Madrid, authorizing that Louisiana be turned over to French commissioners.³

War seemed inevitable. France and the United States had already bloodied each other in an unofficial war lasting from 1798-1800, prompted by the XYZ Affair. The subsequent raids and counter raids had poisoned relations between the two countries and Napoleon's conquests in Europe caused even French-loving Republicans to pause at the prospect of French corps patrolling the banks of the Mississippi River. Jefferson, alarmed by the direction of unfolding events, intensified his efforts to secure, at the least, lands east of the Mississippi. He sent James Monroe to Paris, hoping that Monroe could persuade the French to sell the island of New Orleans and the Floridas, thus consolidating the United State's hold on the Mississippi River's east bank.

Napoleon proved stubborn. He sought to build an empire in America and the prospect clearly worried Jefferson who shared his concern with Dunbar. In March 1803, after thanking him for some Indian vocabularies and other information, Jefferson reported that the interruption of commerce at New Orleans and French troops' impending arrival there had "produced a great sensation here" in Washington.⁴ "Great endeavors have been used from this quarter to inflame the western people to take possession of New Orleans without looking forward to the use they could make of it with a blockaded river."⁵ Jefferson wished peace above all else

but he would not sacrifice what the United States had gained with the Pinckney-Godoy Treaty. If the land in question could not be purchased, "if contrary to expectations war should be necessary to restore our rights, it is surely prudent to take a little time for availing ourselves of the division of Europe to strengthen ourselves for that war."

Jefferson did not rely solely on war preparations to secure concessions, he also intended to "procure the Indian right of soil, . . the whole left bank of the Mississippi to a respectable breadth, and encourage a prompt settlement." By doing this, he argued, the United States would, "thereby plant on the Mississippi itself the means of its own defense and present as strong a frontier as that on our Eastern border." The Native American buffer proved unnecessary.

In April 1803, Napoleon unexpectedly reconsidered his vision of a western empire. He proposed a counteroffer to the United States' bid to buy New Orleans and lands east of the Mississippi: the entirety of Louisiana. Negotiations moved quickly and by the end of the month, Monroe and Robert Livingston signed the agreement, doubling the size of the United States.

News of the treaty finally reached Washington on July 14, 1803. Three days later, an anxious Jefferson informed Dunbar of the purchase. Dunbar exulted in the news. "I rejoice exceedingly." "The mighty Event will form a grand Era in the ... attainment of independence.... [A]ll other

incidents ... dwindle into nothing."¹⁰ But Jefferson had not written just to share good tidings; he needed information on Louisiana, such as details on the exact limits of these newly acquired lands, and he needed it quickly. Meriwether Lewis was already preparing for his assault on the Missouri River.

Dunbar had anticipated Jefferson's queries, and reported that he had already "set on foot an inquiry on the subject of some part of them, chiefly respecting the population & geography of the Province."¹¹ Dunbar suspected that "no tollerable map can be obtained of the Province," he wrote, "but I have materials which with some information expected from N. O. will enable me to prepare you a sketch that may answer your present purpose."

Fortunately, Dunbar had been asked to help supply instruments for the survey team assigned to mark the boundary between Louisiana and Spain's province of Texas. Dunbar thus had privileged information on the treaty's boundary, and, he reported "I shall probably be able to discover upon what principles this line was intended to be run."¹² But in September 1803, a line commissioner for France informed Dunbar that the French did not even expect to run the boundaries since "it is presumed that the two floridas will be given to the U. S. by Spain in exchange for the W. side of the Mississippi."¹³

The Louisiana bargain had left Jefferson unprepared for questions concerning territorial limits. He confessed, "When we first made the purchase, we knew little of [Louisiana's] extent, having never before been interested to enquire into it."¹³ During Congress's autumnal recess of 1803, Jefferson systematically analyzed Louisiana's past rulers, drawing on his vast library, and produced a short piece entitled "An Examination into the Boundaries of Louisiana." He concluded that "Whatever Louisiana was, as retroceded by Spain to France, such exactly it is, as ceded by France to the US."¹⁴ Unfortunately, neither France nor Spain were sure of the territory's boundaries, either. Shortly after Jefferson wrote his piece, he received a note from Dunbar which declared that the Spanish had not "yet come to any determination as to the method and provinces on which the line of demarcation ought to be run" but it is "generally understood here, that the limits of Louisiana are not defined in the Treaty of Cession by Spain to France."¹⁵

The confusion over the international boundary, coupled with the vast ignorance concerning Louisiana, loomed over Jefferson's every decision on the purchase. Not even convinced of the constitutionality of his actions, the president groped for information and found answers to the puzzling limits, thanks to Dunbar. "All the information I secured regarding Louisiana," Dunbar wrote him in September, "I will with pleasure communicate to you as soon as I can

obtain a little leisure from my attendance upon the Commissioners."¹⁷ Dunbar could offer some insights on the eastern edge of the purchase: "I have read attentively," he reported, "the examination into the boundaries of Louisiana. The arguments respecting the Perdido? [River] as an Eastern boundary seem unanswerable, and if the french Gov. agree that such was also their understanding of the treaty, they must be conclusive." "The general idea by the Gov. & people of Louisiana," he continued, "seems to have been that this portion of W. Florida was not yet actually transferred, but soon must follow as being no longer of any use to the Spaniards." Settlers of West Florida again sat in transition.¹⁸

Not until May, 1804, could Dunbar offer Jefferson details on the western limit of Louisiana. Dunbar had learned from the Marqués de Casa Calvo, the Spanish commissioner of limits, that Spain considered the "western limits of Louisiana ... to be designated by a line drawn along the Sabine river from the sea passing by an ancient post called the Adais, thence falling upon a creek called bayu pierre ... & down said creek to the Red river...." Dunbar also learned that the commandant of the Spanish post at Nacodosh (Natchitoches), which lay near the line, has the "most positive orders not to suffer any american or other Stranger to pass beyond what they conceive to be the limits of Louisiana." The Spanish officers, like the French line

officers, also believed that some exchange involving the Floridas and the west side of the Mississippi would take place between Spain and the United States. The Spanish, Dunbar concluded, with "their habitual jealousy," will not allow an expedition into "a country they suppose to be their own."¹⁹ Meriwether Lewis encountered just such a problem.

In December, 1803, when Lewis arrived in St. Louis, the staging area for the Missouri ascension, the fort's commander, Colonel Don Carlos Dehault Delassus, refused him passage since Lewis could not produce a passport authorized by the Spanish government.²⁰ A fair man, Dehault Delassus hurried a dispatch to Juan Manuel de Salcedo and the Marqués de Casa Calvo in New Orleans, the assignees for the transfer to France, informing them of Lewis's presence and requesting that the captain be allowed to continue, being convinced that the Americans had no other "object than to discover the Pacific Ocean, .. and to make intelligent observations."²¹

Dunbar suspected that the Spanish would deny any such request, even though his friend, Stephen Minor, thought otherwise. Minor, who was still in service to Spain and was a favorite of the Marqués's, told Dunbar that the Marqués was "proud & high spirited but easily flattered" and "might readily be induced by a polite application to consent to the exploring, .. upon the principle of promoting Science &

geographical Knowledge." "I however," Dunbar penned, "doubt it."²² Dunbar proved to be right.

On March 30, 1803, the Marqués sent orders that "Captain Merry Weather" be arrested and detained. He considered the exploring party a threatening prelude to encroachments on the Provincias Internas and the Kingdom of New Spain, a threat similar to the one posed by Philip Nolan, before the latter's death.²³ Furthermore, as long as the line of demarcation remained unmarked, the Marqués de Casa felt pressured to protect Spain's border, wherever it may be, and "cut off the gigantic steps" of the United States.²⁴ The Marqués perceived Americans to be ambitious, frugal, and tough, able to cover "200 leagues with no other aids than a sack of cornmeal and flask of powder"; he did not want them in Louisiana.²⁵ "The greatest responsibility would fall upon us," he wrote, "if we should not take, without losing a moment, steps to put a stop to these dispositions and give time for measures to be taken so that the limits of Louisiana may be arranged without compromising the interest of Spain...."²⁶

Spanish obdurance represented just one of the many obstacles to exploring the Purchase. The numerous threats posed by Indians and outlaws, the threat of the unknown, and the need for accurate plant descriptions and exact geographical measurements meant that expedition leaders had

to possess the experience and savvy of a frontier trader, the discipline of a soldier, and the learning of a university man. Jefferson had selected Meriwether Lewis more for the latter's native intelligence and experience with the Indians, than for his scientific training. In fact, persons with the desired experience and learning proved extremely rare. Dunbar was such a person, and Jefferson turned to him.

Jefferson proposed to Dunbar the "unprofitable trouble" of directing an expedition "up the Arcansa to it's source, thence along the highlands to the source of the Red river, & down that to it's mouth." The group, so as not to attract too much attention, would consist only of

10. or 12. picked soldiers, volunteers with an officer, under the guidance of one or two persons qualified to survey & correct by observations of latitude & longitude, the latter lunar, and as well informed as we can get them in the departments of botany, natural history & mineralogy.

Knowing that compensation for Dunbar's efforts would be negligible at best, Jefferson appealed to him as a fellow votary of science: "to take this trouble no inducement could be proposed to you but the gratification of contributing to the promotion of science."

Soon after Jefferson sent his request, Congress approved a paltry \$3,000 for exploring the entire southern portion of the purchase. The President believed this "a very scanty provision, even for a single party." Nevertheless, he quickly wrote Dunbar again to encourage the

Scot to decide. "Altho' time has not permitted me to await your permission yet," Jefferson urged, "presuming on your attachment to science, & attainments in it, and the dispositions to aid it necessarily flowing from these, I have made out the instructions now inclosed, for the person who is to direct the mission." Jefferson placed one stipulation on these directions--that Dunbar consent to serve as cooperator.²⁹

Jefferson guessed correctly as to Dunbar's devotion to science; Dunbar welcomed Jefferson's entreaty of March, 13. "The Surveying & exploring expeditions undertaken at public expense," he wrote Jefferson, "must be gratifying to all lovers of Science and natural research." But he politely chided Congress for its miserly appropriation, even before he learned the extent of congressional frugality: "It would have been very desireable that congress had been more liberal with respect to pecuniary provisions. for certainly the number and talents of the gentlemen to be employed must be greatly circumscribed thereby." He then echoed a complaint he had made to Gayoso six years earlier, during the 31st parallel survey. "The report of the committee which preceded the Law seem to have contemplated services to be rendered to the public by the patriotism of men of Science & Genius," he told Jefferson. "I hope but it is to be recollected that men of small fortune who engage in such

enterprises, however congenial to their feelings, however flattering to the order of their youthful minds, they cannot be accomplished with out great sacrifices of precious time." Dunbar believed that government officials assumed that science's champions would undertake hardships solely for the love of science. "When a great Empire talks of compensation," he protested, "this ought to be adequate to the importance of the Service and honorable both to Gov. & to the Selected individuals." He felt that not only was he undervalued as an explorer, his work, too, did not receive due respect. It pained him that governments did not appreciate the sacrifices required for scientific labor, that officials seemed blind to the potential benefits such efforts could generate.

Recognizing that Jefferson would have to extract more money from Congress's tight fist, Dunbar immediately began to record the practical benefits such a trip would offer the country. Accordingly, he proposed changes to Jefferson's plans. "The Red River being thought to be the most interesting of the two," he suggested, should receive the bulk of attention and therefore, it "ought to be ascended as there by more time will be given to explore than can be obtained in descending provided that no imperious circumstance decides in favor of the arcansaw river." Furthermore, he wrote, "many important objects will present

themselves to the curious inquirer." Such things as "Plants useful for food in medicine, dying & other arts are said to be in profusion," as well as other phenomena of interest. "Salt is to be found in several forms," he had heard, and it could be "collected chrystalized on the surface of the Earth in places where the impregnated water oozes from the pores of the soil & spreads itself along the plane exposed to a burning sun."³⁰ However, the systematic investigation of such phenomena would require money, talent, learning, and a passion for science.

Despite his protests over compensation, Dunbar accepted the President's offer, promising to do everything in his power "to promote the proposed expedition."³¹ Dunbar brought many qualities to this task. His scientific training ranked among the best in America. Of equal importance, his experience on the frontier had taught him how to solve the many problems inherent with such a life, while his success in directing his plantations demonstrated his mastery of complex endeavors. Finally, he lived in a society where competition was keen and he had shown himself to be a leader.

Dunbar quickly wrote Colonel Thomas Freeman in New Orleans to confirm details of the expedition. The "Secretary at War," Dunbar declared, "informs me that you are to cause to be provided a suitable boat with the necessary tools and an escort of one sober discreet active

Sergeant and ten sober faithful privates with rations of ham and flour for six months."³² Dunbar also understood that a commissioned officer would accompany the expedition. If such a man can be "found possessed of talents to assist in promoting the scientific purposes of the expedition," he informed Freeman, "it will be an important addition to the small number."³³ Likewise, Dunbar's long residence on the frontier had taught him that if the expedition was to be successful, the men must work together under adverse circumstances. Therefore, he wished that those chosen exhibit "general good health & if possible robust temperaments; the officers (exclusive of some scientific talent) should possess a persevering disposition, an equanimity of temper & agreeable manners." "Those qualities," he tried to impress on Freeman, "are highly important upon an expedition where a few gentlemen are to be long confined to each others company."³⁴ Health, civility, sobriety, and adherence to protocol, as well as some scientific ability, were essential to a journey where the only law was that of accordance.

However, as details of the Red River trip unfolded, Dunbar grew increasingly uncomfortable over its prospects. Dearborn informed him that he would have to select the expedition's principals from the lower Mississippi's shallow pool of talent. Dunbar, as we have seen, considered the expedition personnel the most important part of the trip.

He quickly wrote back the Secretary at War, claiming, "I should have conceived higher expectations if Gov. had made a selection of characters properly qualified from the Seats of Science or under their own Eye." Surely, the mid-Atlantic states, he reasoned, possessed philosophers who could be engaged for such a journey. "It is perhaps only a just diffidence," he lamented, "to entertain doubts of the requisite qualifications of any persons to be chosen here whose circumstances render this employment desirable."

The problem with finding qualified individuals was not so much the lack of scientific training as it was personal motivation. Most of those who reside here, Dunbar reported, pursue "making fortunes at all hazards... [R]are are the examples here where their Votaries have devoted themselves to the study of Science, but just so far as it may be subservient to this all devouring passion of gain."

Few in the country, not just in the Old Southwest, could afford to hazard a dangerous scientific journey at a rate of less than three dollars. Several months earlier, John Vaughan, Secretary of the American Philosophical Society, reported that he had been "on the lookout for a Botanical person" but that such an individual was "very difficult to meet with." To complicate matters, the miserly appropriation for the trip jeopardized the hiring of a qualified interpreter/hunter/guide, whom Dunbar considered "of utmost importance to the Success of the Expedition."

Without a guide, he warned, the "party might find themselves in the situation of a Ship at Sea without Compass or rudder."³

After making inquiries concerning scientific personnel, Dunbar expressed his discouragement to both Jefferson and Dearborn: "I cannot sufficiently lament the absence of a good Naturalist particularly a botanist: it is not probable that such a character will be found here if he were to be procured upon moderate terms." Dunbar even considered using his own funds to fill this position, but he despaired of finding someone qualified for the job.⁴

Unbeknownst to Dunbar, Jefferson had already secured a gentleman of science for the expedition, George Hunter (1755-1823).⁵ Hunter, a Philadelphia chemist, not a botanist, was eager to make the journey.

In March 1804, believing that the difficulties with the Spanish could be diplomatically resolved, Jefferson had set the Red River saga in motion by selecting Hunter to serve as "coadjutor & successor in case of accident to the principal [the expedition leader]." Hunter grew up in Edinburgh, Scotland.⁶ His father, a Cooper or barrel maker, died in Jamaica while seeking his fortune. Young George, after his sixteenth birthday, turned to medicine and began an apprenticeship with an Edinburgh druggist. Hunter continued his chemical training after immigrating to Philadelphia in

1774, where he volunteered for the Philadelphia militia, and fought at Trenton and Princeton. Three years later he signed on as a ship's surgeon, during which time he accumulated some capital. After the war, he built a distillery in New Jersey, but fire claimed the business along with most of his assets. He returned to Philadelphia and established a druggist concern on a small scale which eventually expanded until Hunter could count customers in the farthest reaches of the United States.⁴²

Hunter's selection for the Red River expedition reflected the lack of individuals who possessed the scientific knowledge, the leisure, and the desire to make such a journey. The expedition would require a ten-months absence, assured hardships, and detailed observations so as to ascertain geographical coordinates, the latter being the paramount objective of all the westward trips. Accordingly, Dearborn instructed Hunter to meet with the country's leading astronomer, Robert Patterson, to find out what instruments would be needed to ascertain the "Latitude & Longitude of the most important sources & junctions of the largest rivers below the Missouri & their courses."⁴³ For the strenuous and exacting work, Hunter would earn three dollars per day, or a total of \$730 for eight months.

But Hunter saw more at stake than a minimal wage. He recognized that Louisiana held great promise as a land of enormous natural resources. During the voyage it became

clear that Hunter considered the trip, at least in part, as a vehicle for his own "passion of gain" as he scrupulously noted the location of materials like ginseng and salt, two articles in high demand. Jefferson cautioned Dunbar not to let Hunter's fondness for precious metals turn the mission into a quest for silver and gold. Still, the president thought highly of Hunter's abilities, stating that the doctor's "fort is chemistry. in the practical part of that branch of science he has probably no equal in the US.""

With the coadjutor decided upon, Dunbar had to find a principal. Jefferson enclosed an address to that person in his April 15 letter to Dunbar:

Doct^r George Hunter of Philadelphia will accompany you, as a fellow-labourer & counsellor in the same service, while the ultimate direction of the expedition is left to yourself. he is to make observations, to note courses, and to enquire into the same subjects recommended to you, but separately; as it is supposed that the two different accounts may serve to corroborate or to correct each other; he is to participate with you in the conveniences & comforts provided, and to receive from you whatever aid & facility you can yield for his pursuits.... Should the accident of death happen to you, he is to succeed to the direction of the expedition."

On May 27, 1804, Hunter and his eldest son, George Jr., who would accompany his father for the entire trip, left Philadelphia and crossed over to Pittsburgh, as Dunbar had 33 years before. There, Hunter directed the construction of a boat in the "Chinese style" to carry him and his son to New Orleans."

As the Hunters began their cross-country descent, Dunbar, who was no closer to finding a leader for the trip, informed Jefferson of another barrier to exploration, an impediment that dwarfed concerns over the Spanish, meager appropriations, and the lack of a botanist. "On the upper branches of the red river," he wrote, "natives reside, always at war with the Spaniards, and as they probably know of no other white persons, the approach to those Savages will require precaution."⁷

Dunbar had made special efforts to learn about the various tribes in his area and knew first-hand the suspicions Native Americans held about white encroachment. Although he enjoyed the confidence of several Indian chiefs, having been asked by them to mark the boundary "between the White & Redman's lands," he had little experience with the tribes in Louisiana.⁸ These tribes included the Pawnee, the Osage, the Wichita, and the Comanche, and they all were proudly independent. Through treaties and gifts, Spain had experienced mixed success in pacifying these tribes, but the United States lacked any treaty with them.

Even more worrisome to Dunbar were reports of "Numerous bodies of warlike Indians," who "inhabit up the Arcansaw river." These Indians, who were members of the Osage, hunted between the Arkansas and Missouri Rivers and were "not understood to be friendly."⁹ The Osage, as Dunbar described them, were "of a gigantic stature and well

proportioned, are enemies of the whites and of all other Indian nations & commit depredations from the Illinois to the Arkansas."²⁰ Chief among these atrocities was the dreaded Osage mourning-war ceremony. This ritual, which has been interpreted as a catharsis for inner-tribal hostility, required that, three days after the death of a warrior, a war party advance in single file and scalp the first person or persons encountered -- irrespective of who they were. The scalp or scalps would then be carefully deposited on the grave, thus freeing the dead soul.²¹

Ironically, Dunbar's letter describing the Osage threat reached Jefferson as the president was meeting with a delegation from the Osage nation. Jefferson quickly wrote back, elaborating the delicate circumstances surrounding the tribe:

12 chiefs of the Osage nation are here at this time among these is the great chief of the whole nation. Capt. Lewis's conferences with them, their visit, and what has passed here, have I believe fixt their friendship permanently.... I mentioned to the Chief this mission. It seems there is a schism in their nation; about 400 warriors of it and their families under the direction a chief call'd the great track, having drawn off about two years ago to the Arkansas river. These will undoubtedly oppose the passage of our party and perhaps do worse. White hairs (the great chief) therefore earnestly desires this mission to be suspended."²²

Jefferson decided that the splinter Osage posed too great a threat for the expedition. On July 17th, he directed Dunbar to postpone the trip.²³

As this letter made its month-long journey to Dunbar, Hunter, who had been settling accounts as he made his way down river, finally arrived in Natchez. Being told that this was election day for members of the general assembly and that Dunbar would probably not be at home, Hunter called on him the following day. When he saw The Forest, he described it as "an elegant Situation & finely improved." He enjoyed dinner with the family and returned to Natchez. Dunbar came the next day and when he saw the Chinese-style boat he worried over its suitability for the mission. He directed Hunter to acquire another boat in New Orleans or have this one modified. They stored the Indian presents and other materials in Dunbar's warehouse on St. Catherine's Creek and then returned to The Forest for "a couple of days where the business & particulars of the expedition were investigated." They agreed that Hunter would proceed to New Orleans to supervise preparations, and that once the boat was ready, he would return by the quicker land route. As they waited for the boat, they would use the time for Dunbar to make the Hunters "more acquainted with the practical use & application of the Mathematical Instruments to the objects of the Voyage." On July 31st, with 27 bales of Dunbar's cotton on board, the Hunters continued to New Orleans.³⁴ Two weeks after their departure, Jefferson's letter announcing the expedition's postponement reached Dunbar's hands.

In his letter, Jefferson expressed great confidence in Dunbar by offering the latter a tempting opportunity: "It is very desirable that you should make use of any part of the men or matters provided for the expedition, and go to what distance, and in what direction you please, return when you please,..."⁵⁵ He immediately accepted this extraordinary opportunity, knowing exactly how he would use the men and matters.

For several years, Dunbar had been interested in a place known to the citizens of Natchez as the "boiling spring or Fountain." Local residents who had visited the springs "in hopes of being cured of paralytic disorders," had returned with tales of mountains with "chrysalizations of various kinds with indications of metals & mineral production hitherto not much explored."⁵⁶ The month before the Red River deferment, Dunbar had written Jefferson of this curiosity, which lay near the headwaters of the "Washita" river. Dunbar apprehended that the hot springs were too far removed from the Red River to be explored during the Red River saga, but he thought the place interesting enough to visit it himself. Now, with Jefferson's offer, Dunbar could explore the springs and the government would furnish manpower, supplies, and a salary. Since Dunbar had not yet engaged a geographer, he could serve as the principal and the chemical wonders associated with the springs should cushion Hunter's disappointment with

the change in plans. He immediately informed Jefferson, Colonel Freeman, and Hunter of his proposal."

While in New Orleans, Hunter had immersed himself in private and official business. He continued to settle business accounts in the city and was "occupied from Morning to night in superintending the work done to the boat." He expressed extreme frustration at the progress made for the expedition: "having but very indifferent workmen, tools, & materials am obliged to attend personally & frequently tear to peices what they have done." To further exasperate him, his son, George, was sick, having struggled for the past two weeks with an "Ardent Bilous fever commonly called the seasoning."⁸⁸

A myriad of supplies had to be secured. Some of the "toolls & necessaries" for the expedition included 100 lbs. of nails and spikes, a small grindstone, calking mallets, boathook irons, 6 felling axes, 48 pounds of rope, and an assortment of paper, tools, and dishes. While Lieutenant Wilson, the officer who had been charged to accompany the expedition, drew rations for the enlisted men, Hunter had to cover other foodstuffs. He bought 573 pounds of flour, 4 barrels of biscuits, 602 pounds of bacon, 38 gallons of whiskey, and, curiously, 48 pounds of soap. Dunbar had also directed him to purchase "Articles of groceries as comforts for the Officers," for which Dunbar evidently paid. These comforts, which cost 186 dollars, included 1 barrel (240

lbs.) of brown sugar, 40 pounds of chocolate, 50 pounds of coffee, Hyson tea, lump sugar, bottled cucumbers, nutmeg, pepper, anchovies, as well as 17 gallons of brandy, 12 bottles of Madeira -- evidently a favorite drink of Dunbar's, and one case of gin." On August 25th, as Hunter finally finished preparations, he received word from Dunbar of the postponement.

Although the change created new problems, Hunter was pleased with the "arrangement of the small excursion" to the Hot Springs. Dunbar had requested that Colonel Freeman supply a smaller boat for this new destination, but there was none to be found and the scarcity of timber prevented the construction of a new one on short notice. Instead, Freeman sent the Hunter boat back up to Natchez, loaded with all the supplies; Dunbar could then use what he needed and place the rest in public storage."

Hunter and his son left New Orleans on September 2nd, accompanied by 12 enlisted men, two officers -- a Sergeant Bundy and a Lieutenant Wilson, Wilson's servant, and a "black Man the Servant of major Claibourne of Natchez," whom Governor Claiborne had asked be delivered to his brother, Frederick Claiborne."

The party relied on three methods to ascend the Mississippi. They used the sail when the wind allowed it but the preferred operation was to track, where six of the soldiers would drag the boat upriver by pulling on a line

fastened to the mast head. When sailing and tracking proved impossible the men would row, six oars at a time, switching hands every hour."

They would embark at daybreak, but their progress varied widely. Stiff head winds and frequent storms opposed them. Likewise, heat and illness drained the soldiers, prompting Hunter, the acting surgeon for the trip, to drain them further as he freely bled them of a pound of blood at a time." On September 15, 1804 Hunter described a "typical" day on the river: "[C]ame about 20 miles & encamped on a Sand bar having shot 4 large Aligators, one only of which we got on board. We made several hauls with our small net, & caught fish enough for supper for all hands & breakfast & dinner the next day." Four days later, an atypical day unfolded. "Found a dead Body floating on the Brink of the river," Hunter recorded, "much bloated, & mangled, buried it in a grave we dug on the Beach. Same day saw Major [John] Ellis from a tour up the River Ouachita to the boiling springs where he had been for his health."

Hunter's journal entries reflect his naivete and mercurial temperament. He appeared perplexed and hurt by others' responses, at times lapsing into litanies describing unreasonable behaviors, and his self-absorption hindered his interactions with others. He continually complained of the men's efforts. Strong head winds, rain, and "uncommonly cold weather" which Hunter ascribed to the Autumnal equinox

having set in, "in good earnest," hampered their progress, frustrating the impatient Hunter. Three weeks into the journey he complained that "a proper application of the means in our power we might have saved the last week of time." But Hunter's unhappiness with the men was just beginning."

The party finally reached St. Catherine's Creek on September 25th and Hunter walked to The Forest. He was kindly received by Dunbar who had been sick and who was busily trying to finish his personal affairs before leaving." The Hunters made the Forest their home as they waited for Dunbar to complete his business.

Some of the men came down with a "bilous intermittent fever" and Hunter dosed them with salts and bled a pound of blood from their arms. He pulled the medicine chest out of its storage in Dunbar's warehouse and gave them a "few doses of the Yellow Peruvian Bark which effectually stopped their fevers." This was a time for the party to gain strength. They "frequently shot wild Brandts [sic] [small black-necked geese] & once a young Fawn." "Our Men all lived very well," Hunter wrote, "got fat & the sick all got strong so as to be able to do their duty at the oars." On October 14th, Dunbar sent word to Jefferson that the party was making final preparations for departure. Dunbar still faced two problems. To solve one, he dismissed Lieutenant Wilson. He explained to Jefferson that he did

not feel "authorized to deprive the Service of a Commissioned officer upon this little excursion," but Dunbar had another reason for removing Wilson. Wilson and Hunter had repeatedly clashed during their three weeks together, at times in Dunbar's presence, leading Dunbar to remark that the "Doctor and Lieut. had not discovered the ... secret of pleasing each other."⁷⁰ Dunbar knew of the importance of civility on the journey and acted to reestablish harmony. The boat offered another difficulty. Dunbar doubted its suitability for the trip, but having little choice in the matter, he decided to outfit it with 12 oars so that all the men could row together. The boat also featured a small cabin and a pavilion midship with tarpaulins and curtains to "keep off the weather."⁷¹

On the afternoon of the 16th, all was ready, and Dunbar "came on board & took the command."⁷² Dunbar began his expedition account on this day. A comparison of the two men's journals offers a contrast in styles, revealing how persons from different social contexts could describe identical objects in widely varying ways.⁷³ Hunter favored an informal, somewhat impetuous narrative. An example was the doctor's description of an incident on an earlier voyage to Kentucky. While on the Ohio River, Hunter, spotted a group of Indians poling a large boat up the river:

I examined them with my spy glass & found them all quite naked except an handkerchief tied round their heads & a breachclout round their middles; as we approached their boat they perceived my

Glass & immediately two of them lifted up their breechclout & stuck out their bare Posteriors."

Dunbar, on the other hand, exercised a strict reserve in his analysis of events, even towards the two difficulties he had worked to correct: the boat and discord. The constant pre-trip delays had threatened a timely return so that a report could be made to Congress in the early spring. Efforts to make up this lost time were frustrated by the boat's construction, ill-adapted for river travel. With twelve hands rowing, the party's progress remained maddeningly slow. On the third day out, Dunbar and Hunter prepared a log line to measure their speed and discovered that they were advancing a scant four perches every half minute, or one and one-half miles per hour." To complicate matters, the rivers offered many obstacles. Dunbar described their dilemma: "Continued our voyage with immense sand bars in view at every point: the utmost care in steering was necessary to keep clear of shoals and sunken logs, which latter were frequently very embarrassing." While shoals could be navigated, nothing could be done about logs hidden underwater. "We suffered much detention this day," Dunbar wrote on November 2nd, "being twice fast upon a sunken log, . . . and our boat being so unwieldy & heavy, there was no getting her off by any exertion of poles &c which could be made on board." From his long experience on rivers, Dunbar knew that "external keels" were "very improper for any boat upon the mississippi or any river where

logs are to be encountered." "Our boat to her other inconveniences," he observed, "was provided with a keel, which added to her draught of water,.. it being impossible to clear her by pushing latterally." Furthermore, the low river levels made this the "least favorable season for ascending this river with a boat of so considerable a draught of water."

Hunter may have felt the sting of the inadequacy of his specially constructed Chinese junk, but whatever his motivation, he began berating the men. Dunbar soon realized that the removal of Lt. Wilson from the expedition had not solved the problem of discord. With increasing despair, he watched as Hunter began exchanging heated words with Sergeant Bundy and the enlisted men. On Sunday, November 4th, Hunter recorded an incident that smacked of mutiny. "The men, or rather some of them," he wrote, "often grumbling & uttering execrations against me in particular for urging them on." The soldiers' mutterings were bad enough, but they were simply following the lead of their commanding officer. The men, Hunter observed, "had the example of the sergeant who on many occasions of trifling difficulties frequently gave me very rude answers, &," Hunter continued "seemed to forget that it was his duty in such cases to urge on the men under his command to surmount them rather than to show a spirit of contradiction & backwardness." These affronts, especially in front of

George Jr., must have pained Hunter, but the aspersions remained framed only in voice. Furthermore, Dunbar, not Hunter, was the expedition's leader and although Dunbar also commented on the men's lack of vigor, he apparently suffered none of the affronts directed at the doctor. Dunbar's inaction in the face of the angry exchanges, even though he could hardly have missed them, indicates that he may have considered that the problem lay more with Hunter than with the soldiers. In his supremely diplomatic manner, Dunbar later confessed to Jefferson that although "the Doctor is a good & a worthy man, it is however observable that his is of a very warm temper."¹⁰

But like Hunter, Dunbar, expressed disappointment in the party's progress, attributing their slow pace, at least in part, to the soldiers' disinterested rowing. However, he recognized the boat's severe limitations and he sympathized with the soldiers' task.¹¹ For the day on which Hunter records the trouble with the men, a Sunday, Dunbar wrote, "This has been an unfortunate day; the morning and afternoon were spent upon shoals and rapids with stoney & gravelly bottoms, the Men having been a great part of the time in the water."¹² With an air temperature of 54 degrees at sunrise and a water temperature of 64 degrees, the men would have been cold, tired, and probably unappreciative of Hunter's harangues.

In addition to his need to return home so as to pen a report to Congress, Dunbar held a philosophical position on exploration that revealed his value of time. He avowed that any party of exploration must concentrate on analysis and that "As little time as possible ought to be lost in moving, that more may be left for observation and research."

Dunbar's comments reveal the preeminence of science for this voyage. They must reach the hot springs quickly so that they would have ample opportunity to analyze this phenomenon. The two men recorded the varieties of vegetation on the shore, rates of speed, and other incidentals but precise geographic measurements and scientific analysis could be accomplished only on land. In Dunbar's view, every precious hour should be devoted to ascertaining geographical coordinates and to studying the boiling springs: sightseeing and discovery remained secondary concerns.¹³ Nevertheless, Dunbar's and Hunter's general observations offer glimpses of how nature and society influenced their personal views.

During his long residence near the Mississippi River, Dunbar developed deep respect for the Father of Waters; subsequently, he made the river his standard of comparison. On his first day on the Red River, which exceeds 1000 miles in length, Dunbar commented on the size of the trees lining the banks: "The Trees are so exceedingly grand & lofty upon the banks of the Mississippi, that by comparison those

bordering on this river seem dwarfish, and appear to bear a kind of proportion to the magnitude of their own river."“ Hunter simply noted that the timber was small. Three days later, after they had entered the Black River, he also compared the Black to the Mississippi: "the timber becomes larger, the banks in some places 40 feet high, yet liable to inundation, not from the floods of this small river, but from the intrusion of its more powerful neighbour the Mississippi."“

Dunbar did not let his views on lesser rivers interfere with his scientific inquiry. He meticulously collected samples of soil, plants, and wildlife, all the while offering his speculations on what he saw: "[V]egetation [on the Red River] surprisingly luxuriant along the banks owing no doubt to the rich red marle yearly deposited by the floods of the river,..." and "the last single inundation of the red river appears to have deposited on the high bank a stratum of red marl above 1/2 inch thick now dry; some specimens were taken."“

Likewise, Dunbar made careful observations on the plant life. He expounds more frequently and more fully on the passing flora than does Hunter, which would be expected from a planter. The attention and obvious affection Dunbar evinces in his depictions of plant life contrasts sharply with his sterile, numerical recitations of speed, distance covered, and heavenly bodies. His botanical descriptions

resonate with feeling. "Vegetation is extremely vigorous along the alluvial banks," he wrote. "The twining vines entangle the branches of the trees & expand themselves along the margin of the river, in the richest and most luxuriant festoons." This vegetation, he observed, would "often present for a great extent a species of impenetrable Curtain variegated and spangled with all possible gradations of Color from the splendid orange to the enlivening green down to the purple & blue and interwoven with bright red and russet brown.""

But Dunbar's praise of nature did not blind him to details. His scrupulous method of observation is evident in his description of an aquatic plant "resembling little Islands." "The extremity of each branch," he recorded, "is terminated by a spike of very slender and narrow seminal leaves from one to two inches in length and 1/10 or less in breadth." Continuing, he confessed, "I at first supposed it might be the same which is described by Mr. Bartram as occupying large portions of the surfaces of rivers in East Florida, but upon examination I found it to be entirely different.""

Dunbar knew that plants, or their absence, could offer clues to the history of the rivers. While Hunter noted on October 24th "some highland to the right," Dunbar scanned the timber on this acclivity and reached a conclusion about the area's susceptibility to floods: "[T]he magnolio [sic]

grandiflora is absent; its presence is an infallible sign of lands not subject to inundation."³ Dunbar's habitation in the South allowed him to make observations unavailable to a visitor like Hunter, who had probably never seen a magnolia tree prior to his journey southward.

Although Dunbar frequently described ideas and objects with deep feelings, he appeared more detached when describing people. We must learn from Hunter that two slaves and a servant accompanied Dunbar on the trip.⁴ Dunbar's first mention of people focused on two settlers living in "a covered frame of rough poles without walls." But Dunbar merely alludes to the couple so that he can expound on the possibilities of the land. The land's bounty, he claims, allows the man and woman to reach independence, secure a slave--who would then also benefit from the plenty--thus bequeathing to them all a glowing future: "How happy the contrast when we compare the fortune of the new settler in the U.S. with the misery of the half starving, oppressed and degraded Peasant of Europe!!"⁵ While Dunbar gloried in the country's potential, Hunter grumbled about the boat's progress: "The men rowed very idolently [sic]," he complained.⁶

What each man considered common or uncommon was highlighted when the group encountered, in Hunter's words, "a black man a stout fellow who called himself Harry, with nothing but his shirt & trowsers on, who gave no

satisfactory account of himself, said he was free, but had nothing to show for it." Hunter goes on to describe what they gave Harry to eat and their plans for him, whereas Dunbar simply noted, "After dinner caught a runaway negro.""

Dunbar's comments on others represent his detachment, his ken for speculation fueled by curiosity. As he watched the landscape slide by, he theorized about what he saw, offering hypotheses on the origins of forested landscapes, the genesis of plains, the changing colors of the leaves, and other phenomena."

His objectivity and deep theoretical preoccupation appear most obvious in his recounting of an almost fatal incident involving Hunter. On November 14th, as the party pulled up the Ouachita, past Bayou Mercier, their pilot informed them that they would encounter no more inhabitants or settlers until their return--they were now on their own. One week later, as they continued their ascent, pressing deeper into the interior, Hunter thought it wise to keep his pistol loaded, in case of attack. He described what happened next:

I was in the act of loading my pistols & whilst ramming down the ball, I was sitting on a trunk with the pistol between my knees resting its butt on the trunk. by the motion of the boat or otherwise it slipped & immediately went off in my face. The whole charge with ball & ramrod went thro between my right thumb & two principal fingers, which were thereby lacerated considerably, & then passed along my face, burning my eye lashes & eye brows entirely off & the skin

round my eyes & nose. the charge bruised my forehead & caused two black eyes, & then passed thro my hat within an inch of my right temple and finally thro the roof of the boat."

Fortunately, Hunter lost neither his thumb nor his fingers, suffering only a mild concussion. But Dunbar seemed more interested in what he found in the wake of Hunter's mishap. Examining the bottom a new powder horn, forced outward by the discharge, Dunbar mused over the "curious effect of the elastic power of the air": "After sustaining a considerable compression," he wrote, "the returning vibration causes a partial rarefaction." "At the same instant," he reasoned, "the common air confined within bodies involved by the sphere of rarefaction, exerting its spring to restore the equilibrium, forces outwards all obstacles not sufficiently secured to resist its action." "Dunbar's remarks not only vividly describe the effects of uneven air pressure, they underscore his philosophical view of nature, his passion for understanding phenomena.

In spite of Hunter's "great pain and debility," losing, temporarily, the use of his right hand, the party pushed on for the Hot Springs." On December 6th, they reached their northernmost river stop, Ellis Camp, named after the old planter they had passed on the Mississippi back in mid September. Over the next four days, the soldiers shuttled back and forth, transporting supplies overland the remaining eight miles and sixty perches to the springs."

The first group of men to return from the boiling waters described the springs with wonder: "they were unable to keep the finger a moment in the Water as it issued from the rock, they drank of it after cooling a little and found it very agreeable; some of them thinking it tasted like Spice-wood tea."⁹⁹ Dunbar received these reports with some skepticism; when he sampled the water himself, he reported, "I did not discover any other taste except that of very good water rendered hot by culinary fire."¹⁰⁰

Near the springs, the group found an open log cabin and a few huts of split boards used by those seeking the curative waters. The men modified these structures to thwart the cold while Dunbar and Hunter began their scientific analyses. Hunter's damaged right hand still bothered him but he was able to examine the water: determining its specific gravity, testing its acidity with litmus paper, and mixing it with such chemicals as "Nitrat of silver, Nitrat of Barytes, Sulphuric, Nitric or Muriatic acides." He reported that the water lacked smell or taste, and differed from other hot water only in that "it caused a slight eructation," that is, it promoted belching. Dunbar recorded water temperature at each of the four major discharge points, the highest reading being 150 degrees Fahrenheit, measured the springs' flow rates, and wrote extensively about the mineral deposits in and around the springs.¹⁰¹

The most exciting discovery, at least for Dunbar, involved some plant-like objects the men saw immersed in the fiery water. In spring three--with a water temperature between 140 and 150 degrees-- Hunter reached in and pulled up some of this "green matter." He described the curiosity as like "lively mossy plants in full vigor, a large one of which I took up from where I could not bear my hand half a minute."¹⁰² Hunter never doubted the specimen's vegetable state, but Dunbar was not so sure. "No vegetable," he declared, "is hitherto known to exist in the temperature of 150°." He measured the water temperature where Hunter pulled up the specimen and recorded a relatively cooler 134°, but still hot enough to fuel his doubt that any plant could survive such heat. He admitted that the object "had much the appearance of a vegetating body, being detached from the bottom yet connected by something like a stem which rested in calcareous matter," but Dunbar reserved judgment, claiming that he would have to examine it further with a microscope before he could speak definitively.¹⁰³

If the plant-like substance turned out to be alive, he knew the importance of such a find. Joseph Priestly, in testing for plant airs, had also doubted that the slimy "green matter," as he termed it, that developed on the inside of his glass vessels was living.¹⁰⁴ If it were alive, then such a state would not influence the airs being produced in the experiment, it would underscore the

robustness of life. Dunbar mused that, "should it prove that this is a vegetable production and not an accumulation caused by precipitation, it will be a new proof of the wonderful powers of nature ... in temperatures which have been hitherto though sufficient to extinguish the vital principle."¹⁰⁵ Furthermore, if the "green matter" was vegetable, then Dunbar expected that it would harbor animal life, "because no plant," he wrote, "upon due research will be found without its animal inhabitants."¹⁰⁶

Unfortunately, harsh weather stalled any immediate resolution of the curiosity's status. Air temperatures dropped as low as the single digits and snow and sleet began to fall. Hunter was felled by another misfortune--"a severe attack of the gravel" or kidney stones.¹⁰⁷ With Hunter "very much indisposed" and the weather unfavorable for exploring, the ever serene Dunbar used this time to augment his list of vegetables and to observe the "beautiful icicles," which, he wrote, "we have the pleasure of admiring thro' the logs as we sit by the fireside."¹⁰⁸

The weather cleared on Christmas Eve and Dunbar continued to explore the region and accumulate evidence on the green matter. He was astonished to find branches of a wax myrtle "thrust into a run of hot water of temperature 130°, where the foliage of the branch was not only of a good healthy colour, but at the very surface some fresh roots were sprouting from the branch."¹⁰⁹ "This has the

appearance of being so strange & singular," he wrote, "that few persons will be willing to believe it, judging no doubt that some deception or want of accuracy has led us into error." However, no one need accept his words without proof, it being "in the power of every one to try the experiment with some trouble by artificial means."¹⁰

Dunbar's numerous duties and the inclement weather forestalled his detailed microscopic analysis of the green matter until the party was preparing to leave the springs. However, Dunbar was determined to conclude his analysis before departing; in precise scientific fashion, he recorded in meticulous detail the results of his study. "I procured some [green matter] of a beautiful kind from a small natural bason," he wrote, "where the hot water communicated freely but did not pass with current." "The green matter," he observed, "represented a beautiful green moss more than half an inch in length as if growing out of a calcareous basis, completely under the water at the temperature of 130°." He placed the sample underneath a microscope and recorded that it, "sparked ... with innumerable globules of chrstalized lime / as I suppose / the texture of the green matter seemed to be some what fibrous but did not present a decided organized form."¹¹

Still, Dunbar remained undecided on the matter, and deferred his decision to some future naturalist who, he believed, would possess the competence and the time to make

a more thorough analysis. He warned prospective investigators, though, "not to be too hastily carried away in their opinions from a superficial view; for there is no doubt that an inexperienced person would at once decide, that this green matter is a real vegetable." Such a mistake would be understandable, he reasoned, since "the fine green colour & the mossy appearance appear to be a strong evidence." However, the line between living and nonliving substances, particularly productions of the earth, was still blurred during Dunbar's time. Some philosophers, such as the Naturphilosophen in German-speaking countries, endorsed the idea of living rocks, an idea that could be traced back to Aristotle; but Dunbar cautiously pointed out that when one considers nature's "wonderful productions" due to chemical attractions, "such as the beautiful configurations of some chrystalised salts perfectly resembling vegetation," and other specimens such as the "arbor Dianae, .. which may be seen under the microscope shooting forth a trunk branches, foliage & even an appearance of fruit," but are non-living minerals, "I say from the consideration of those & similar productions, we are taught to hesitate & to doubt."¹²

Curiously, Dunbar dropped the above caution in his published account. "I incline ... now," he wrote, after having several months to think about the specimen, "to believe that the green matter is a true vegetable, not only

from its great resemblance to some of the mosses particularly the Byssi, but also from the discovery I have just made that this moss is the residence of animal life."¹¹³

Dunbar had stated earlier that if the green matter was indeed vegetable, then he would expect animals to inhabit its form. In spite of his skepticism that plants could survive such severe temperatures, he believed that minute animalcules could survive the hot water, and on December 28th, after careful searching, he saw something. "I found this evening upon the green matter a minute shell animal, .. about the size of the smallest grain of sand."¹¹⁴ He described it as a "shell-fish of the bivalve kind," "its shape ... nearly that of the fresh water muscle." He believed that the animal fed on the green matter, further convincing him of the plant's organic origin. With exacting language and the aid of a micrometer, Dunbar produced a precise description of the bi-valve.¹¹⁵

As the time to depart approached, the two votaries busied themselves with last-minute observations. Hunter, apparently having passed his kidney stone, ventured into the surrounding area to look for other phenomena worthy of note. Dunbar continued his measurements of latitude and longitude, refining his technique and the accuracy of his coordinates.¹¹⁶ On the morning of January 8th, Dunbar determined that the melting snow had raised the water level

enough to allow for a safe passage downstream.¹¹⁷ They descended the rivers without mishap and by the morning of January 26th, Dunbar was back home, ending his journal with the note: "found my family all well."¹¹⁸

During the time that Lewis and Clark were in their winter camp at Fort Mandan, Dunbar and Hunter had embarked upon their expedition, investigated several rivers, made numerous scientific observations of the Hot Springs, returned from their journey, and reported their findings.¹¹⁹ Subsequently, Jefferson received valuable information--explicit information on the Hot Springs, geographical coordinates, scientific analyses, and practical concerns--when it was not even clear whether or not Meriwether Lewis was keeping a journal.¹²⁰ Jefferson could use Dunbar's and Hunter's information to convince Congress to fund future expeditions more generously. In fact, Jefferson reported to Dunbar that the legislature had allocated \$5,000 for the delayed Red and Arkansas Rivers expedition and that Dunbar should now turn his attention immediately toward organizing that journey.¹²¹

But for the next year, Dunbar busied himself making the thousands of calculations necessary to determine distances and geographical coordinates. His correspondence with Jefferson continued as he tried to help with problems Lewis

and Clark were experiencing. His plantation flourished, yet his health faltered, in these, his twilight years.

ENDNOTES

1. William Dunbar, Life, Letters, and Papers of William Dunbar of Elgin, Morayshire, Scotland, and Natchez, Mississippi, Pioneer Scientist of the Southern United States, ed. Mrs. Dunbar Rowland (Eron Rowland) (Jackson, Miss.: Press of the Mississippi Historical Society, 1930), 130.
2. Dunbar, Life, 126-27.
3. For an excellent overview of the Corps of Discovery see chapter 14 of Silvio A. Bedini's Thomas Jefferson: Statesman of Science (New York: MacMillan, 1990).
4. Dunbar, Life, 116.
5. Ibid, 120.
6. Ibid, 158. Jefferson kept the vocabularies and sent the rest of Dunbar's information to Caspar Wistar, Professor of Anatomy at the University of Pennsylvania, with the comment "The inclosed sheets may contain some details which perhaps may be thought interesting enough for the transactions of our society." Donald Jackson, ed. Letters of the Lewis and Clark Expedition, with Related Documents, 1783-1854 (Urbana, Ill.: University of Illinois Press, 1962), 17.
7. Dunbar, Life, 159.
8. Ibid, 158.
9. Ibid, 159.
10. Ibid, 122.
11. Ibid.
12. Ibid, 123. Dunbar informed Jefferson that Daniel Clark of New Orleans could also supply reliable information on Louisiana. See page 122.
13. Ibid, 124. The belief that the United States would receive the floridas persisted. In May of 1804, Dunbar wrote Jefferson that Spanish officers in Louisiana are "possessed with a belief that some exchange will take place

by giving the floridas for the West side of the Mississippi excepting as they presume that the U. S. may remain possessed of both sides of the Mississippi below the Chafalaya,..." Life, 131.

14. Thomas Jefferson and William Dunbar, Documents Relating to the Purchase & Exploration of Louisiana (Boston: Houghton, Mifflin & Company, 1904), 9.

15. Ibid, 40.

16. Dunbar, Life, 125.

17. Ibid, 125.

18. Ibid, 130.

19. Ibid, 131.

20. Jackson, Letters of Lewis and Clark, 142-43, 145-47.

21. Ibid, 143.

22. Dunbar, Life, 132.

23. Noel M. Loomis, "Philip Nolan's Entry into Texas in 1800," in John Francis McDermott, ed. The Spanish in the Mississippi Valley 1762-1804 (Urbana, Ill.: University of Illinois Press, 1974), 123-32. Loomis speculates that when Nolan was killed in Texas in 1801, the adventurer was operating as a spearhead for an army of invasion to be led by General James Wilkinson.

24. Jackson, Letters of Lewis and Clark, 173.

25. Casa Calvo to Ceballos, New Orleans, July 25, 1804. Quoted in Loomis, "Philip Nolan's Entry," 120.

26. Jackson, Letters of Lewis and Clark, 185.

27. Jefferson to Dunbar, March 13, 1804, TJP-UVA, Reel 48, vol. 139, f. 24019.

28. Jefferson to Dunbar, April 15, 1804, TJP-UVA, Reel 48, vol. 139, f. 24102.

29. Dunbar, Life, 130-31.

30. Ibid, 133-34.

31. Ibid, 131.

32. Ibid, 137. Secretary at War, Henry Dearborn, was instrumental in organizing exploration parties into Louisiana.

33. Ibid, 138.

34. Ibid.

35. Ibid, 129.

36. Ibid.

37. John Vaughan to William Dunbar, February 10, 1804, Kammerdeiner Collection.

38. Dunbar, Life, 139.

39. Ibid. Dunbar had asked for a botanist's salary to be included in the appropriations. Dunbar to Dearborn June 15, 1804. Ironically, one month after the expedition left, Constantine Samuel Rafinesque, a superb botanist, wrote Jefferson to express interest in accompanying an exploring party into the new territory. "If it ever seems worthwhile to you, to send a Botanist ... with the parties you propose to make visit the A[r]kansas or other Rivers, I can not forbear Mentioning that I would think myself highly honored with ... being selected, ... and would think that Glory fully adequate to compensate the dangers and difficulties to encounter." Jackson, Letters of Lewis and Clark, 218.

40. I use the phrase "gentleman of science" self consciously. Jack Morrell and Arnold Thackray introduced the "Gentlemen of Science" to historians to describe the coterie of "liberal Anglicans who possessed secure status, income, and property," and who dominated the early years of the British Association for the Advancement of Science, founded in 1831. Morrell and Thackray use the phrase to connote these men's religious and moral vision, which does not describe Hunter, who, although a man of some means, property, and scientific knowledge, seemed more interested in pursuing fortune than in pursuing God. Gentlemen of Science: Early Years of the British Association for the Advancement of Science (Oxford: Clarendon Press, 1981), 101.

41. Biographical information on Hunter is taken from a short autobiographical piece appended to his journal as well as an excellent introduction to the journal by John Francis McDermott. George Hunter, "The Western Journal of Dr. George Hunter, 1796-1805," Transactions of the American Philosophical Society, ed. John Francis McDermott (Philadelphia: The American Philosophical Society, 1963), 123-24. All quotations retain the original spelling.

42. Hunter, "Western Journal," 19. See also page 60 for a sample of Hunter's wide-ranging business interests.

43. Henry Dearborn to George Hunter, March 30, 1804. National Archives, War Department, Secretary of War, Letters Sent. Dearborn budgeted \$500 for instruments. Henry Dearborn to George Hunter, April 3, 1804. National Archives, War Department, Secretary of War, Letters Sent.

44. Hunter, "Western Journal," 6, 8-9, 62, 98-99, 110. Like Hunter, Dunbar also held a keen interest in salt, starting a salt works of his own in the new territory. See his Will in Records of Wills, No. 1 -- Adams County, Mississippi, Adams County Courthouse, p. 131, in which he bestows the salt works to his daughters Ann, Margaret, Eliza, and Helen.

45. Jefferson to Dunbar, April 15, 1804.

46. Hunter, "Western Journal," 10.

47. Dunbar, Life, 132.

48. In 1801, Dunbar had described in a letter to a local official how chiefs along the Natchez Trace had agreed to open a road to Nashville but had turned down requests to build houses, claiming that such structures would "become places of rendezvous for dissipated? young men of all colours & evil will ensue." Dunbar to Bernard Lintot, December 23, 1801, Kammerdeiner Collection.

49. Dunbar, Life, 132.

50. Ibid, 211.

51. Carl H. Chapman, "The Indomitable Osage in Spanish Illinois (Upper Louisiana) in John Francis McDermott, ed. The Spanish in the Mississippi Valley 1762-1804 (Urbana, Ill.: University of Illinois Press, 1974), 294-95.

52. Ibid, 207, 211. Donald Jackson, Thomas Jefferson & the Stony Mountains: Exploring the West from Monticello (Norman, OK.: University of Oklahoma Press, 1993), 225.

53. Dunbar, Life, 131-32; Hunter, "Western Journal," 11.

54. Hunter, "Western Journal," 11, 60-62.

55. Dunbar, Life, 134.

56. Ibid, 134.

57. Ibid, 134, 139.

58. Hunter evidently supplied many New Orleans residents with medicines and chemicals. "Western Journal," 62-64.

59. A full list of supplies appears in Hunter, "Western Journal," 64, 68. An original bill of sale, dated August 30, 1804, for the officers' delicacies is in the Kammerdeiner Collection.

60. Hunter, "Western Journal," 64.

61. Ibid, 65.

62. Ibid.

63. Ibid.

64. Ibid, 66.

65. Ibid. Hunter later reported that the body belonged to a post rider who had drowned during a delirium of fever. One of the men Hunter had hired in Pittsburgh had also drowned when he walked off the boat while stricken with fever.

66. Ibid, 67.

67. Ibid, 68-69.

68. Ibid, 69.

69. Ibid.

70. Dunbar, *Life*, 147.

71. Hunter, "Western Journal," 71.

72. Ibid, 69.

73. Dunbar's account of the journey appears in different sources. The record based most closely on his field notes is in *Life*, 216-320. This account contains slightly more narrative material than the published report which appeared in Documents Relating to the Purchase of Louisiana Boston: Houghton, Mifflin & Company, 1904, which is based on the record that he sent to Jefferson and was deposited at the American Philosophical Society's library in 1817. The latter account contains Dunbar's geometrical survey, showing his daily recordings of direction, temperature, rate of speed, and geometrical recordings.

74. Hunter, "Western Journal," 21. Obviously, the men considered Hunter's action intrusive.

75. Dunbar, Life, 217. To measure distance, Dunbar used a portable chronometer and a log line divided into perches. He compensated for the velocity of the current by deducting it immediately from the rate per log. See Dunbar's "Preamble" to his Geometrical Survey in Documents Relating to the Purchase, 3.

76. Dunbar, Life, 232.

77. Ibid, 232.

78. Ibid, 231.

79. Hunter, "Western Journal," 87.

80. Dunbar, Life, 147.

81. Ibid, 217, 224.

82. Ibid, 233-34.

83. Ibid, 231.

84. Ibid, 217.

85. Ibid, 219. Hunter, "Western Journal," 81.

86. Dunbar, Life, 217-18.

87. Ibid, 224.

88. Ibid, 221.

89. Hunter, "Western Journal," 83. Dunbar, Life, 224.

90. Dunbar does not mention his servant until January 18th, in the last days of the voyage. See Life, 314. This lapse in describing fellow explorers can be observed in other scientific literature. See, for example, Claude Lévi Strauss's Tristes Tropiques where the reader does not learn until more than halfway through the book that other adventurers accompanied Levi Strauss in his Brazilian expedition.

91. Hunter, "Western Journal," 81. Dunbar, Life, 219-20.

92. Hunter, "Western Journal," 82.

93. Hunter, "Western Journal," 81; Dunbar, Life, 218.

94. Dunbar, Life, 226, 233.
95. Hunter, "Western Journal," 96.
96. Dunbar, Life, 249. Dunbar's demeanor here is comparable to the time Thomas Jefferson calculated the most efficient way to dig a grave while observing the interment of a close friend.
97. Ibid, 249; Hunter, "Western Journal," 96.
98. Dunbar, Life, 267, 269. Hunter measured the distance from the boats to the springs using a surveyor's chain. "Western Journal," 109.
99. Dunbar, Life, 268.
100. Ibid, 272.
101. Hunter, "Western Journal," 103, 107. Dunbar, Life, 273-75, 299.
102. Hunter, "Western Journal," 102.
103. Dunbar, Life, 274-75
104. See Thomas L. Hankins, Science and the Enlightenment (Cambridge: Cambridge University Press, 1985), 121.
105. Dunbar, Life, 275-76.
106. Ibid, 276.
107. Hunter, "Western Journal," 106.
108. Dunbar, Life, 283.
109. Ibid, 291.
110. Ibid.
111. Ibid, 296.
112. Ibid, 296-97.
113. Jefferson and Dunbar, Documents Relating to Louisiana, 142-43.
114. Dunbar, Life, 297. Dunbar does not state why he thought animal forms could exist in the scorching water, while plants could not.

115. Ibid, 300. Dunbar reported the animal's length to be 1/50th of an inch. Documents Relating to the Purchase and Exploration of Louisiana, 143.

116. Hunter, "Western Journal," 108; Dunbar, Life, 302-03.

117. Dunbar, Life, 304.

118. Ibid, 320.

119. Jackson, Letters of Lewis and Clark, 213, 222.

120. Dunbar, Life, 142-48. See Captain Clark's letter to Jefferson, dated April 1, 1805. Lewis's record for the expedition up to Fort Mandan has not been found. Jackson, Letters of Lewis and Clark, 226.

121. Dunbar, Life, 152.

EPILOGUE
THE LAST YEARS OF A SCIENTIFIC LIFE

Although Dunbar now had the wealth, the leisure, and the cooperation of government to indulge his love of science, he was now in his mid-fifties and his health began to fail. A lifetime of fighting fevers had left him drained and he spent more and more of his time close to bed. Jefferson also seemed to have grown tired and his letters to Dunbar stopped for no discernible reason.

From 1805 to 1807 Dunbar used his waning energy to channel his scientific efforts into two directions: discovering a way to determine longitude without the use of a timepiece and organizing expeditions to Louisiana. The first of these two ambitions addressed the necessity of accurate geographical coordinates, which remained the primary purpose of Lewis and Clark's trip up the Missouri River. Jefferson wanted maps of the new area and he wished these charts to be as precise as possible. Latitudinal measures presented no great challenge but the determination of longitude entailed some difficulties.¹

Correct longitudinal measurements mandated an accurate chronometer but, almost inevitably, the timepiece would become "deranged" due to the rough treatment associated with

ventures into wilderness and back country. The timepiece could be corrected with careful astronomical sightings but this required a practiced eye, a steady hand, and a head for figures. Meriwether Lewis had received a hurried education in surveying and Jefferson worried that Lewis' inexperience might lead to multiple errors in measurements and coordinates. Lewis, Jefferson informed Dunbar, was trained to calculate his longitudes with the aid of a time-keeper, and "I knew," the President wrote, "that a thousand accidents might happen to that in such a journey as his, and thus deprive us of the principal object of the expedition, to wit, the ascertaining the geography of that river." But Jefferson rarely mentioned a problem without proposing some kind of solution. "I set myself to consider," he continued in his letter to Dunbar, "whether in making observations at land, that furnishes no resource which may dispense with the timekeeper, so necessary at sea. It occurred to me that as we can always have a meridian at land, that would furnish what we want of it at sea obliges us to supply by the time-keeper." Jefferson reasoned that a stationary meridian could obviate the need of a timepiece. Lewis, equipped with the requisite tables and nautical almanacs, could sight the moon over Greenwich's meridian and then measure the distance between that meridian and his own. "This distance," Jefferson reasoned, "would be the difference of longitude between Greenwich and the place of observation." Dunbar

wrote him back, claiming that the principle was correct but that its application would involve new problems: "There must be at least two good observers and a nice instrument diff. from the sextant: it is at all times a curious operation to form a meridian sufficiently correct for the ... ascertainment of the Long." The operation would also require intricate instruments not suited for rough travel.'

In spite of the practical complications, Dunbar thought deeply about the challenge of determining longitude without a time piece. After all, he had carried to the Hot Springs a beautiful and intricate circle of reflection which could accomplish such a task. He developed some theories, discussed them with the Mississippi Territory's gifted Surveyor General, Isaac Briggs, made some test measures, and excitedly wrote back Jefferson to declare that he had found a solution to the longitudinal problem.' Jefferson thanked Dunbar for his thoughts, believing that since Dunbar's theory was "founded in practical skill," that it would "answer it's end." But nothing further seemed to come of the exchange. When the leader for the Red River expedition, Thomas Freeman, reached Natchez in January, 1806, Dunbar wrote Jefferson, "I am much pleased that he [Freeman] brings with him a good chronometer, we will ... ascertain its rate of going by my astronomical clock, .. if it be found to go well, the longitudes may be ascertained as frequently and easily as the latitudes."

Freeman's arrival quickened the drum of activity, forcing Dunbar to put aside longitudinal theories. Dunbar had been planning the Red River trip for almost two years but many preparations still remained. Five days after returning from the Hot Springs, Dunbar had written Dr. John Sibley of Natchitoches, another student of science, who had extensively studied the Red River valley, for details on that part of the country.⁸ Dunbar also corresponded with a French gentleman, Monsieur Lafon of New Orleans, a lover of science, who was busily mapping the southern portion of the continent.⁹ For the ascent itself, the bitter memories of Hunter's Junk had spurred Dunbar to design two experimental boats specifically for the expedition.¹⁰

Unfortunately, finding qualified personnel for the trip had again proved difficult. Jefferson had written Dunbar in May 1805, informing him that Hunter, due to business concerns, would not make the trip after all and that George Davis and Colonel Freeman would serve as the expedition's principal and assistant, respectively.¹¹ Davis was an assistant to Isaac Briggs, whom Dunbar considered a good friend. Dunbar immediately replied to protest Davis's selection. Briggs had discovered that the man was "a very improper person" with "so unhappy a disposition that we cannot think that any harmony would exist in the party where he might be placed...."¹² Dunbar was more comfortable with the selection of Colonel Freeman of New Orleans, who had

helped him with preparations for the Hot Springs trip. However, when Dunbar wrote Freeman about the Red River, the colonel knew nothing about the journey. Perplexed, Dunbar wrote Jefferson for clarification, and wondered if they would have to "give up the idea of finding persons qualified in any other department of Science but merely the geographical part; a good disposition to observe and record such new objects ... must supply the rest."¹³

Jefferson had chosen another man named Thomas Freeman, who was also a colonel. Since Davis was unworthy of leading the trip, Freeman was now the principal. Jefferson's clarification erased the Freeman confusion, but it did not lessen Dunbar's concern because he also knew this other Freeman, having worked with him on the 31st parallel at which time he observed that Freeman "did not appear ... to be fond of astronomical observation." Ellicott had positively hated the man, a member of his own team, and swore never to work with him again. Still, if anything, Dunbar was an optimist and suggested that Freeman "may have had occasion to improve himself since that time."¹⁴

Dunbar's hope and his preparation almost saved the Red River expedition. A worthy assistant for Freeman had been found and even a young medical student of Benjamin Barton's, Peter Custis, had signed on as botanist. However, the numerous misunderstandings, combined with the high suspicions of the Spanish, proved insurmountable. On July

29th, almost 635 miles above the mouth of the Red River and far short of their goal of the headwaters, Francisco Viana, leading a detachment of soldiers, demanded that Freeman's party return or they would be fired upon. Freeman acquiesced."

Undeterred by this experience, Jefferson pushed for a trip up the Arkansas River the following year. Dunbar again agreed to organize the trip, with Freeman serving as the principal. Dunbar engaged a geographical assistant for Freeman, even allowing the assistant to live at The Forest until Freeman could come up from New Orleans. With plans proceeding accordingly, Dunbar received a incredible letter from Dearborn: "By some mistake or inattention, no appropriation was made in the late session of Congress for defraying the necessary expenses of the proposed exploring party up the Arkansas." Accordingly, Dearborn directed Dunbar to "discharge any persons who may have been engaged by you for such service; and to have whatever instruments, utensils, or stores ... put into as safe keeping as circumstances will permit." Dearborn apologized for the "frequent drafts" made on Dunbar's time and patriotism, and thanked the aging planter for his tireless service to country. Dearborn's thanks might have been appreciated at the time, but two years later Dunbar was still trying to collect expenses he had incurred in preparation for this trip. Dunbar heard nothing from Jefferson and he did not

write the President, thus bringing to an uneasy end their correspondence. Part of the reason for Jefferson's sudden silence probably lay with his exhaustion in pushing for explorations and his preoccupation with other matters, particularly the Aaron Burr affair. Additionally, Dunbar had succumbed to an unknown but "most afflicting malady" in 1807 which kept him close to his bed and away from most of his correspondence.¹⁴

Dunbar's illness followed a difficult year. He lost his closest friend of the past 30 years, Alexander Ross, to a cancer of the temple.¹⁵ Several months later, Dunbar suffered a devastating economic loss when his cotton magazine caught fire, engulfing "cotton in the seed sufficient to make about 70 thousand" pounds of clean cotton, his cotton mill, 2 cotton presses, and a corn magazine with a large quantity of corn, a loss he estimated at \$20,000.¹⁶ Dunbar described his loss in a letter to APS secretary John Vaughan, one of his few continuous correspondents, whom Dunbar used as a resource to acquire everything from books to coaches. In true Scottish fashion, Dunbar assured Vaughan, "As I never intrude upon my crop before it arrives at market, nor have any large engagement depending upon it, this loss ... will not produce any embarrassing inconvenience."¹⁷

Vaughan proved a valuable friend, frequently sending Dunbar items at his own expense and not charging a

commission for time spent meeting Dunbar's requests."²⁰ Dunbar trusted Vaughan enough to place his eldest son, William, under Vaughan's protection when he sent William to Philadelphia to be educated. It was Dunbar's wish to bestow upon William "the education of a Gentleman and a man of Science."²¹

Dunbar also maintained some correspondence with world-renowned naturalists. He shipped specimens from the Ouachita River to the Pennsylvania botanist, Henry Muhlenberg, who kindly and enthusiastically identified those that he could and even answered Dunbar's request for useful books on American botany."²²

But sustained efforts became more difficult for Dunbar as illness plagued him and his family--writing William about his smaller brother, Thomas, Dunbar penned the sad note, "Very bad news, Tommy died 27th of last month." Yet Dunbar struggled on and, even though still ill, played host to the ornithologist, Alexander Wilson, in the summer of 1810. Wilson delighted in his visit with the Dunbars and as he was returning to New York, he expressed the pleasure he had derived from the "sweet Society" of Dunbar's family. He also professed hope in the "prospect of the complete restoration" of Dunbar's health, and promised to send his volumes of American Ornithology as soon as he landed in New York."²³ Dunbar never saw them; four months later, he was dead.

Dunbar's scientific legacy remains impressive. Few could match his contributions to the state of knowledge of the Old Southwest and much of his research appeared in volume six, parts one and two of the Transactions of the American Philosophical Society; no author contributed more articles to these two issues of the country's leading scientific journal.²⁴

Dunbar also labored mightily to organize science in his community. Largely through his initiative, Jefferson College survived its fractured beginnings and proceeded to educate students for the next 150 years.²⁵ Likewise, the spirit of the dissemination of knowledge, which he had so carefully nurtured, survived his death in the form of the society he had helped found, the Mississippi Society for the Acquirement and Dissemination of Useful Knowledge. That the Mississippi Society survived as long as it did reveals its members' tenacity and interest.²⁶ The Society's constitution carefully provided for the election of new members, but new blood evidently did not enter the group and, eventually, the old breed neared extinction. Its first president, Isaac Briggs, moved back to Washington City. Vice-President W. C. C. Claiborne, who had relocated to New Orleans in 1803 to accept the governorship of Louisiana, may have become a corresponding member, but he died in 1817, still a young man, seven years after the death of the Society's other inaugural vice-president, Dunbar. John

Henderson, the Treasurer, would live in Natchez until 1841, long after the Society's demise. John Girault, Librarian and Curator, and Revolutionary War veteran, died near New Orleans, in 1813, during the War of 1812."

In 1824, the Society's epitaph was recorded by Samuel Postlethwaite, Dunbar's aging son-in-law, who bequeathed to Jefferson College the last of the Society's library, much of which had been, no doubt, acquired by Dunbar. The short note in the school's register, recording the gift, served as the Society's last contribution to the advancement of knowledge: "The Mississippi Society May 1824 (By Samuel Postlethwaite in behalf of a few surviving members less than a quorum the Society being consequently dissolved) A Collection of Books consisting of 200 volumes."

But neither Dunbar's death, nor that of the Society, could thwart the pursuit of science in the Natchez District. Numerous votaries of science continued to live and work in the Natchez District, although they recapitulated the irony that had accompanied Dunbar's life--citizens of small communities who were unaware of the votaries in their presence. Perhaps, the priorities of life on the frontier had relegated science to the bottom of daily concerns, to a low position in a hierarchy that is reflected in Dunbar's headstone. The weathered words, still legible on the white obelisk which shades his grave at The Forest, reveal that hierarchy: "His wife laments a tender Husband; His children

an affectionate Parent; His friends, a valuable Acquaintance; His Country, a most useful Citizen; and Science, a distinguished Votary." Even though repeated obstacles had hindered his organization of science in the lower Mississippi River Valley, Dunbar must have felt some satisfaction as he lay on his death bed, knowing that the new house of Dunbar was firmly established on American soil. He could also be assured that his labors for science had furthered human knowledge, had diminished the confusion of the unknown. Numerous frustrations had wasted his precious time, but he had persisted in his relentless pursuit of truth.

ENDNOTES

1. The longitudinal distance between two places is simply the difference in local time for each spot. Longitudinal accuracy relies heavily on exact measurements of time; the closer one is to the equator, where the world is spinning at 464 meters per second, the more important accuracy becomes. On the equator, an error of one second translates into a positioning error of half a kilometer. Anthony G. Randall The Time Museum Catalogue of Chronometers (Rockford, Il.: The Time Museum, 1992), 2.
2. Dunbar, Life, 175.
3. Ibid.
4. Ibid, 155.
5. Ibid, 185.
6. Ibid, 189.
7. Ibid, 191. Freeman used this chronometer, as indicated by a letter Dunbar directed to him at Natchitoches, giving his correction of the clock so that Freeman could adjust it

accordingly. Dunbar to Freeman, May 28, 1806, Wailes Collection, MDAH, Series 1, Box 1, Folder 4.

8. Dunbar, Life, 162-74.

9. Ibid, 178-82.

10. Ibid, 187-88.

11. Ibid, 174-75.

12. Ibid, 154.

13. Ibid, 182.

14. Ibid, 330-31.

15. Ibid, 189-96. 339-42, 348. See Donald Jackson's Thomas Jefferson & the Stony Mountains: Exploring the West from Monticello (Norman: University of Oklahoma Press, 1981), 228-36, for an overview of the Red River expedition.

16. Dunbar, Life, 197-98, 353-54, 356- 57, 366-70, 386.

17. Ibid, 384.

18. Ibid, 349.

19. Ibid, 349.

20. Ibid.

21. Ibid, 361. Dunbar asked that William receive instruction in Latin, Greek, French, and Spanish. Most importantly, he wanted his son to receive a good education in mathematics, considering it "as a main pillar upon which a Superstructure may be raised of the various branches of Natural philosophy." Life, 362.

22. Ibid, 198-204.

23. William Dunbar to William Dunbar, Jr., July 28, 1808, Kammerdeiner Collection. Dunbar, Life, 205-06. Ironically, Wilson had written Jefferson in February 1806, two months before Freeman left Natchez, requesting permission to travel as a naturalist with the Red River expedition. For some reason, Jefferson failed to respond, giving rise to the speculation that Jefferson never received it although Wilson had apparently sent it through a mutual friend, William Bartram. Jackson, Thomas Jefferson & the Stony Mountains, 227.

24. Transactions of the American Philosophical Society 6, part I, (1804); Transactions of the American Philosophical Society 6, part II, (1809). Dunbar's desire for detail is reflected in his meteorological journal, which runs from February 1799 to March 1810. Each day features three temperature readings, the barometric pressure, wind direction, and precipitation, if any. No days were missed. Dunbar Papers, Z114, MDAH, Box 2, Folder 10.

25. William T. Blain, Education in the Old Southwest (Washington, Miss.: Friends of Jefferson College, 1976), 23.

26. Many such societies had been formed in the late 18th century in more populous areas with far shorter longevity. The New York Society for Promoting Useful Knowledge, established in 1784, lasted a scant three years, meeting the same fate as the Connecticut Society of Arts and Sciences. Hindle, Pursuit, 273-275.

27. Girault biographical information is from a WPA survey written by Laura D. DeLap. See the subject file on John Girault at MDAH.

28. "Register of donations," 4. The register tally of the books lists a total of 203 volumes. Postlethwaite, died on October 18, 1825. See obituaries in The Ariel, 11/07/1825, and the Natchez Gazette, 10/29/1825.

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Abbreviations of Archives:

- APS -- American Philosophical Society; Philadelphia, Penn.
AUL -- Aberdeen University Library
DUA -- Duke University Archive; Durham, NC.
HNO -- Historic New Orleans Collection.
LC -- Library of Congress
MDAH -- Mississippi Department of Archives and History;
Jackson, Miss.
OHS -- Ohio Historical Society; Columbus Ohio.
SHC -- Southern Historical Collection, University of North
Carolina, Chapel Hill; Chapel Hill, NC.
UVA-TJP -- University of Virginia, Thomas Jefferson Papers;
Charlottesville, Va.

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